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THE FLIGHT SIMULATOR PILOT'S MAGAZINE!

Virtual Airlines
an overview of the world of virtual airlines

Carrier Ops
carrier operations in FS 2002



A close look at eDimensional's
3D Glasses

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Round Robin Adventure - Medevac to Chattanooga
Flying Online
ATI Radeon 8500 Review
Airstick 2000 - Freehand Joystick Review
Schiratti Control Center Review
Fighter Ace III Review
Jeppesen SIMCharts Review
WW II Online Update
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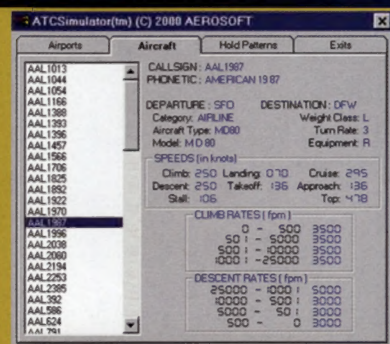
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pilot in command



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No need for ATC when landing on Lake Erie. Or, taking off from the Amazon for that matter. But, fly over realistic cities or into crowded airspace, and the new interactive ATC is right there with you. You're flying in the real world with FlightSim 2002. Your perspective from the cockpit is 3D. Contrails flow from your engine. And waterways from around the world await. Climb in the cockpit. It's time to fly. microsoft.com/games/fs2002



FLIGHTsimulator WORLD



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From the Editor...

As it was expected, almost six months after the release of *Microsoft Flight Simulator 2002*, the add-on aircraft, scenery and utilities are really rolling off the production line now. All kinds of cool stuff to put our hands on. Now we just have to resist the temptation to go out of the house and enjoy the fresh spring air, because we have really serious business to tend to. Something that often gets overlooked is the whole world of virtual airlines. There is a robust industry going on, and many of us don't know much about it. For those of you who would like to know more, we offer a feature by Art Weiss in this issue. If this is something you would like to read more about, please let us know. We have often entertained notions of running a continuing series about what's happening in the realm of virtual airlines.

Answers looking for some questions

Another thing we would like to move forward with is a "how to" question and answer column. We assume that most of you have an Internet connection now, and spend some of your time at the various FS-related web sites. These forums can be a valuable source of information for you, to be sure. But if there is something you are just not seeing get answered, and don't want to get in the line of fire on the sometimes rancorous Internet forums, please forward your questions to us. We will get the answers for you, and print some of the most frequently asked questions here.

Keep the blue on top!

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FG_PsychoDog leaving game
Granny leaving GRR
Granny leaving game



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- 14. Virtual Airlines** - Arturo Weiss gives us an overview of the world of virtual airlines, and what they are all about.

Virtual Airlines offer us the next best thing to sitting in that coveted left seat on a Boeing 747. But before jumping into this project, you just need to evaluate your time and interest. If you do join, you just might be amazed at how much fun you're having.

- 19. Carrier Ops** - Doug Horton takes us through carrier operations in FS 2002, and shows us what is available out there to make it as real as it gets.

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Flying for a medical air ambulance service over the Great Smokey Mountains.

- 33. Flying Online** - Flight planning, and communicating with FS 2002 ATC.

Using this feature is a quick and highly realistic way to practice for online, or even real flying with ATC.

NOTAMS



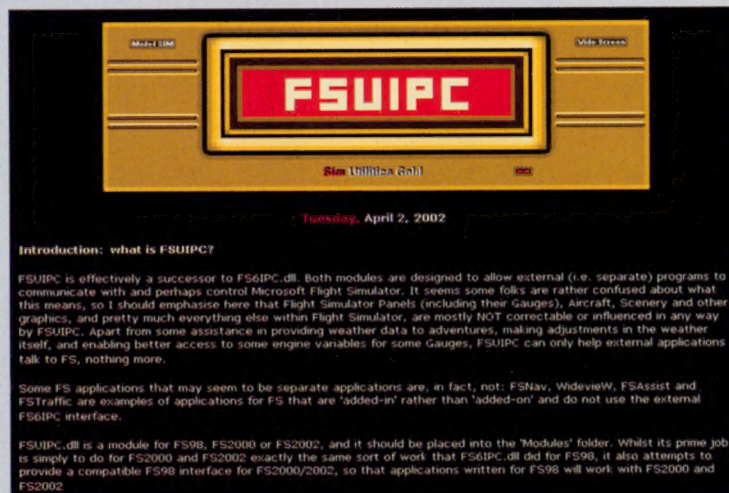
New Version Of FSIUPC

Pete Dowson has released a new version of the Flight Simulator staple FSIUPC.dll. Pete also has a new website, so if you have his old one bookmarked, you might want to make note of it.

FSIUPC allows external programs to communicate with Microsoft Flight Simulator. It also offers you more control options over wind, weather, joystick effectiveness, and much more. The new version 28.42 corrects some problems users may have been experiencing with joystick/throttle functionality. If it has been a while since you updated this module, we recommend you do so. If you have never installed it, we strongly recommend you do so. It is definitely a must have!

More Information:

<http://www.simugold.fsnet.co.uk/fsiupc.html>



767 Pilot In Command Updated to FS 2002

Wilco has announced that this popular add-on has now been updated for full compatibility with Microsoft Flight Simulator 2002.

The upgrade also provides a new set of keyboard commands to assign mouse clicks to combinations of keys, and a completely new user interface. There is also a new set of failures, along with other new features:

- A new AFDS designed for sim rates up to x4
- Complete modeling of VNAV flaps and gear speed protection during climbs and descents
- Increased accuracy for handling of decent speed restrictions
- An update of the Airways Page logic to make it more realistic
- Air Traffic Control activation for IFR flight plans
- Support for Windows XP and Windows 2000
- The addition of a Brussels International (EBBR) to Paris Charles de Gaulle (LFPG) flight

More Information

The new patch can be downloaded from Wilco's website at:
[http:// www.wilcopub.com](http://www.wilcopub.com)



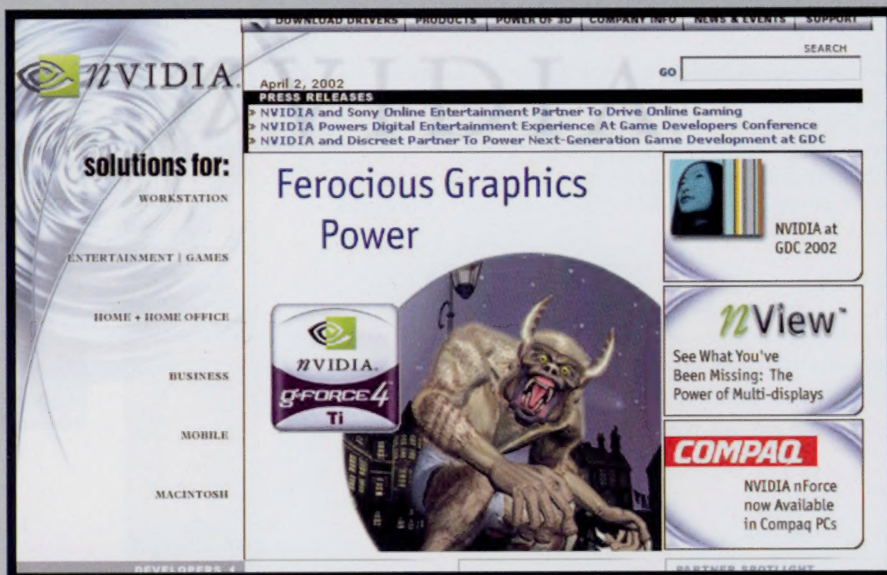
Nvidia Releases GeForce 4 Chipset

Nvidia has delivered a brand new family of 3D accelerator chipsets, the GeForce 4. You should be seeing new video cards using this technology on the retail shelves now. The clock speed on this chipset is even faster than the GeForce 3, and features an advanced effects engine, improved antialiasing technology, and multi-display capability.

More Information:

You can read more on the Nvidia web site at:

<http://www.nvidia.com/>



FSMeteo 5.1 Released

Author Marc Philibert has announced this new version of his well-established Flight Simulator weather control add-on. It is compatible with FS 98 thru FS 2002, and also works with Combat Flight Simulator 2.

More Information:

Details are available at the FSMeteo website at:

<http://www.fsmeteo.com/>



Sim Systems Announces Release Of FSFlightMax

This high-tech FS add-on is slated to be released by the time you get this new issue. FSFlightMax is modeled around the real FlightMax avionics device from Avidyne. It has a moving map, weather Radar, TCAS traffic display, terrain information display, and lightning tracker. It is a module (not a gauge) that loads into Flight Simulator and operates in it's own window.

More Information:

Details are available at the FSFlightMax website at:
<http://www.simsystems.com.au/fsflightmax/>

FSFlightMax Home

Release Date
Monday, April 08, 2002

Sim Systems in co-operation with Avidyne Corporation is proud to bring you FSFlightMax, Flight Situation Display for Microsoft Flight Simulator 2002 and 2000.

Jane's Attack Squadron Released

Mad Doc Software has announced the release of the long awaited Jane's Attack Squadron, the latest World War II flight combat simulation for the PC. It emphasizes low-level ground and sea attacks, set in the western European Theater. Sea-based missions are flown over the English Channel and North Sea off the European coast.

More Information:

Details are available at the Mad Doc website at:
http://www.maddocsoftware.com/games/janes_attack_squadron.asp



SCASM 2.85 Released

Manfred Moldenhauer, author of this well known Flight Simulator scenery design compiler and assembler, has released a brand new version to the design community. This new version adds more support for the most recent changes in the Flight Simulator scenery engine.

More Information:

Details are available at the SCASM website at:
<http://www.scasm.de/>



Just Flight Releases Captain Speaking For FS 2002

This new version of the original FS 2000 program offers 37 airline flights using authentic ATC, with over 22,000 different voice recordings, varied weather and holding patterns. Just Flight is offering upgrades of a new Captain Speaking 2002 CD-ROM and manual for a nominal fee to all registered owners of the existing version of Captain Speaking.

More Information:

Details are available at the Just Flight website at:
<http://www.justflight.com/>



Dassault Mystère-Falcon 50

for FS 2002 pro

Authors Yannick Lavigne and Fred Banting have released this excellent freeware model of the Falcon 50. The aircraft features top-quality visual modeling, panel, custom gauges, and virtual cockpit.

More Information:

Details are available at:

<http://caea.free.fr/en/simu/falcon502k2.html>



X-Plane 6.11 Released

New for 6.11 is full support for both Mac OS 9 and all current Windows operating systems. Also, X-Plane now has land-use data for the entire world, and customizable sky and lighting systems.

More Information:

Details are available at the X-Plane website at:

<http://www.x-plane.com/>



Microsoft announces New Online Magazine

Flight Simulator Insider is a new online magazine maintained by the Flight Simulator development team. Behind-the-scenes features, how-to articles, and other activities will be featured in each issue.

More Information:

Visit Flight Simulator Insider at:

<http://zone.msn.com/flightsim/>





Virtual AIRLINES

The Next Best Thing To Flying The Big Iron

By Arturo Weiss

What is it about flying an airliner? Why is it that many a pilot has dreamed of getting their hands on a big jet and launching into the wild blue yonder? Could it be the excitement of handling all of that massive power? Or just the sheer thrill of flying amongst the clouds? Perhaps, it's just the opportunity to visit new and exciting destinations? But whatever the reason, pilots, real-world and virtual, have worked and dreamt of this segment of aviation.

With the good always comes the bad, and most airline pilots will tell you that their lifestyle is no bed of roses. There are drawbacks to flying the big iron. If you ask

airline pilots, one of their biggest criticisms would be scheduling. Airline flying and "9 to 5" don't equate. Airline pilots fly at all hours and seasons. Holidays are non-existent for the rookie pilot, as seniority dictates the assigned schedule one receives. "On duty" hours, or the amount of time that pilots wear the uniform (while flying or not), can stretch on for quite a bit.

While federal regulations limit the amount of duty time a pilot can be scheduled for, it is not uncommon for a lower rank pilot to be on schedule for 12-16 hours. Obviously, this takes a toll on one's personal life, and the divorce rate among airline pilots is comparatively high.

Okay, enough of the pessimistic talk.

There are huge benefits to the profession and aside from those I spoke of earlier. The sheer prestige that these flyers project is on the top of many aspiring pilots' list. Aside from that, the equipment and training that these pilots undertake is top notch. Only the armed forces could do better.

Real-World vs. Virtual Airlines

So, what should you do if that coveted airline pilot's seat is not available just yet? Well, fly for a Virtual Airline (VA) of course! You see, like in many other ways, flight simulator-based VAs offer a whole world of flying opportunities. Most aspects of airliner operations are replicated for benefit of the

user, just like their real-world counterparts. This is not only good for realism purposes, but it is quite educational as well.

Cyber airline pilots are introduced into the world of airline operations, which is often shielded from the public. Not for secretive reasons, but due to access more than anything else. VAs employ most major facets of real-world aviation, and that makes it much more fascinating. Best of all, there are all types of VAs in existence that offer everything from small-puddle jumping operations to international routes flown by jumbo-jet crews.

Some VAs mimic real-world air carriers, while others are a unique creation of their own. For VAs that replicate the real thing, authenticity is a major goal. There are several of these groups out in cyber-land, and it's interesting to note their level of realism. Most of these will only feature the aircraft that their real-world counterparts fly. Route structures often replicate the air carriers actual system. Call signs are the same, and of course, the livery and paint schemes are often top notch as well.

When mimicking a real-world carrier, VAs are very careful not to overstep any legal bounds, and that's why you'll often see disclaimers on their Web pages saying something like, Virtual Southwest Airlines does not represent the real company and are not liable for..." Don't get me wrong, some real-world companies enjoy their virtual counterparts. But they may not exactly appreciate any negative commentary or action taken by these virtual pilots and airline managers.

Anatomy Of An Airline

So what goes on behind the scenes at your favorite airline? Well, quite a bit actually. It takes a lot to get these airliners into the air. The pilots are just part of the long and complicated chain of events (and people) that get the job done. Maintenance, dispatch, safety and flow control are just a sample of the behind-the-scenes work.

When flying on an airliner, you might have encountered a delay or two while trying to get to your destination. I know I have! While sloppy operations could play a role here, other factors could slow down the process too. Weather, mechanical problems and air traffic control delays could all contribute to a flight's delay. Sometimes, airlines just push their scheduling to the limit, and the inevitable problems pop up. Virtual airlines could run into the same problems if they're not careful.

I worked in the airline industry for a while, and I clearly remember the unspoken motto of the industry: make money! Don't let anyone fool you, money is the driving factor here, and everything that is done

revolves around that goal. This isn't a crime because after all, airlines are a business like any other.

As I mentioned earlier, Virtual Airlines do a pretty good job of mimicking the air carriers we all have learned to love (or hate). This involves using a good portion of the job duties I previously talked about. Scheduling and training are just some areas often associated with well-established VAs.

While some will let you fly right away, others will require prospective pilots to go through a training program first. Aside from flying, you'll find a host of other jobs at a Virtual Airline. These include training directors, hub managers, scheduling, safety and even fleet management personnel. This is always a good option for those flight sim enthusiasts that may want to do more than fly, by contributing to the organization itself.

Types of Virtual Airlines - Take your Pick

Major Airlines

The big boys of the airline industry are the major air carriers. We're talking about the biggies here like United, Delta, and American, etc. Of course, the major foreign carriers, like British Airways, Lufthansa and KLM are part of this exclusive group. Pilots at these airlines make the big bucks, especially, when flying the larger jets.

Similar to the real-world, each virtual airline has its own route structure. Some VAs are domestically oriented, while others stretch their operations around the globe. Not all VAs are based in the U.S., however, and solely compete abroad. Virtual Finnair is one such example and they concentrate most of their efforts in covering most of the major European destinations. This diversity is what truly makes flight simulation and virtual airline flying a global activity.

Regional Carriers

Regional carriers (also called commuters) may be a step lower in size than the majors, but no less professional or successful in nature. These airlines often concentrate on a particular region of the country, hence the name "regional". In the old days they were called commuters, because their reach was not quite as extensive as today's routes.

In those days they often flew smaller piston or turboprop aircraft, like the Beech 1900 or Jetstream 31/41 series. Today a lot of those aircraft have been replaced by small jets, like the Canadair Regional Jet (often called the "RJ"), and the Embraer 135/145 models.

The area of coverage is now pretty vast, and many of these aircraft will fly a route normally used by the majors. The fleet

sizes of some of these companies compare to that of their big brother counterparts, like American Eagle and Comair. These companies usually fly connecting flights and smaller feeder service for major airline partners, as Comair does for Delta.

Cargo

Before I continue, I should talk a bit about all-cargo operators. These VAs and real world airlines run the gamut in size and coverage. There are the smaller sized operators that use small piston aircraft, or larger and sometimes older aircraft to complete their mission.

A vintage aircraft like the reliable Douglas DC-3 is often a favorite platform for these operators. These aircraft are usually seen on shorter haul flights into sparsely populated areas and airports. The Caribbean, Alaska and South America's backcountry are just a sampling of the places these small cargo operators (virtual and real-world) flourish.

Of course, there are the heavy hitters of the cargo industry, and most have their virtual counterpart in operation. UPS, FEDEX and Cargolux are just a sample of this fascinating group. *Freight dogs*, the name often given to cargo pilots, operate on a seemingly different frequency than their passenger-hauling counterparts. There is no glamour in the cargo business, but these guys really don't care about that stuff anyway. VA cargo pilots can expect to fly routes to airports in all kinds of weather, and often throughout the night. Are you up to it?

Tradewind Virtual Airlines (TCA) offers this kind of service with their DC-3's and other assorted cargo aircraft. TCA also offers larger all-cargo aircraft, like their new C-17 Globemaster III. Of course, they're not only cargo-based, as they offer passenger, charter, and a whole range of other services out there. They are not the only one out there, but definitely one of the biggest in existence.

Helicopters

Rotorheads don't fret! There are virtual flying organizations just for you. Everyone knows that an executive needs to be shuttled to his next meeting after arriving to the international airport, right? Helicopter-based VAs and flying clubs provide this necessary service. You'll find these operations based at major cities, with skyscrapers full of helipads. For example, Metro Helicopters, based in the New York City area, is such an operation. From air taxi to corporate transport, medical flights to construction/heavy lift missions; Metro Helicopter provides service to the NY/NJ areas. Who said you have to be flying a fixed-wing aircraft to have fun?



Airliner departing into a low overcast



Bush plane waiting for its next passenger

Military Groups

Not all groups under the VA heading are scheduled carriers. Some involve military and even search and rescue flight operations. Take for instance, the USAF Scenario and Virtual Air Force groups. These organizations replicate the military might of the U.S. Armed forces. Their activities include everything from reconnaissance missions, to simulated attack runs. No worries about grumpy passengers here, as most military aircraft do not include in-flight movies! Seriously, this is a great, and different type of VA flying. I encourage all to check it out.

Bush Flying

If the big iron or fast fighter jets aren't for you, then you may want to consider another alternative: bush flying. Yes, believe it or not, there are bush flying groups out there. Rather than flying heavy jumbo jets, these flyers enjoy a more simplistic form of flying. Large, wide runways are the exception rather than the rule for these types of operations.

Most virtual bush pilots enjoy landing an amphibious aircraft on a lake, river, or even a gravel strip. They would tell you that this is real flying...far different from those high-tech, autopilot-assisted flights over the contiguous U.S. In contrast to the high-altitude airways over major cities, the route-

structure for bush flying organizations can comprise of low-level flying through mountains passes, scud-running, and even landing on glaciers! Freedom to fly when you want, how you want, and to destinations rarely visited are the primary attraction for virtual bush flyers.

One such flying club is Bush Flying Unlimited (BFU). Their website describes both the fun and perils of this type of flying: "It's up to your common sense, flying ability, and conditions to select the appropriate aircraft for the job. Remember, it's up to you to get there and back in one piece." That about says it all, doesn't it?



Cardinal Airlines

1999-2000

Home Page

PERSONNEL

Advancement

Emulation

Training School

Club House

Management

Flight Operations

OPERATIONS

Europe

Asia

Europe

Asia

Europe

Asia

Europe

Asia

Europe

Asia



HEADQUARTERS TEAM

Organizational Chart
Management Requirements Manual
Cardinal Airlines Org Chart and MRM are copyright © 1997-2002

Pilot No.	Name & ICO No.	Position
CAL2	Darden Newman - 9093701 - profile	Founder and Chairman of the Board
CAL5	Okey Caynor - 150662	President & CEO
CAL4	James Murph - 10911080	Executive Vice President
CAL18	Milton Stolz	Vice President Cardinal Europe
CAL12	Nate Piro	Vice President Cardinal America
CAL14	Neville Muir - 95078700	Vice President Cardinal Pacific
CAL17	Jim Goodnight (OSU/DOG)	Vice President Cardinal Express
CAL16	Tom Stoner	Vice President Special Operations
CAL315	George Nimes	Flight Director
CAL309	Mike Davis	Public Affairs Director

Cardinal's Management Team



Ready for takeoff into a snowy sky



Sea Knight at Guantanamo



The beauty of flying an airliner

On-Demand Charters

Sometimes customers just don't have too much advance notice for the need to travel somewhere, especially on business. This is where the on-demand charter business comes in. Usually, a quick phone call is all that's needed to get the business traveler to his meeting on time.

Several Virtual airlines have on-demand charter divisions and enjoy operating these flights via smaller business jets. In both the virtual and real worlds, business and corporate aviation is a growing segment of the aviation industry. Business aircraft often meet, or even exceed, the technology seen aboard airliners.

Air Ambulance

Actually a part of charter aircraft operations, air ambulance services offer time-critical flight for the transport of patients. Several VAs operate this kind of service with business jets and Medivac helicopters. There are several of the groups on the Web, and offer quite an interesting mix and match of flying routes and aircraft.

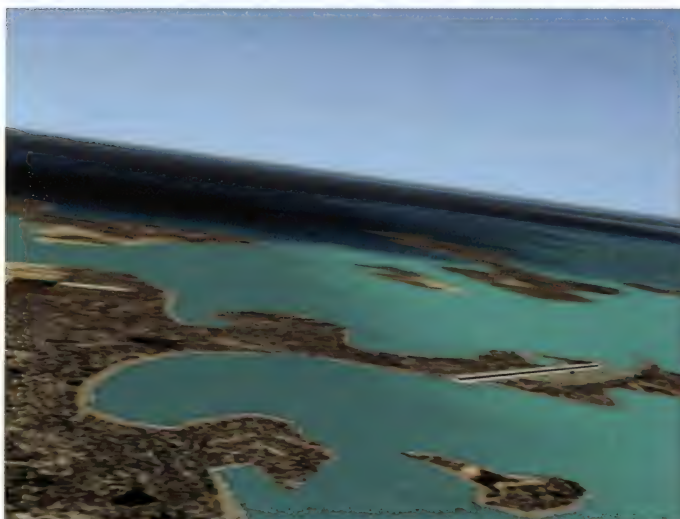
Joining a Virtual Airline

This is typically not a complicated process, but it does take some planning. There are several things to consider before joining such an organization, and you need to make sure that you're joining the VA that is right for you.

To accomplish this, I suggest that you ask yourself what you are looking for in a virtual airline:

- Do you want an operation that is structured in every way, as in the real-world?
- Are you willing to go through a long selection process, followed by training and a checkride?
- Do you want to fly pre-selected flight assignments given by an airline dispatch office? Or would you enjoy the flexibility of flying what you want, when you want to do it?
- Would you rather join a large or small carrier flying domestically or internationally?

As you can see, there are lots of things to look at while flipping through the list of virtual airlines on the Web.



VAs fly to exotic places



VAs online

Aside from the type and structure of a particular virtual airline, you really need to examine your enthusiasm and resources for this new project. Some VA flying can take quite a bit of your time. How much do you have to offer? If it's an hour per week, then you need to find an organization that will let you get away with that. Some VAs have a minimum flight-time requirement, and obviously that would not suit this particular situation.

Another thing to consider is your level of experience and flying proficiency. Some VAs require more aviation knowledge than others. Your level of comfort will also dictate whether or not you might want to fly online. Some VAs require that you do fly online with either VATSIM or IVAO, and if going in that direction, you need to be familiar with some level of IFR flying. If this isn't your cup of tea, then you could always opt for a VFR operation or small feeder service. This is where a helicopter group might be just the option for you.

Training & Hitting The Books

After being accepted in a VA there will probably be some level of training required before you are allowed to start flying. This could involve anything from just reading the company's Standard Operating Procedures (SOP) manual to going through a regimented training program. As I mentioned before, this all depends on the VA you work for. The larger ones usually require this training, while smaller carriers tend to be much more flexible.

If you will be flying for one of these regimented carriers, get ready for some testing before ever getting into a scheduled flight. Most of the time these airlines will require various lessons and exams. All of this will culminate with a recorded checkride. Basically, you will be asked to record a flight that follows a specific flight program. Just like in the real world, you'll be expected to follow headings, turns, climbs, descents, landings and approaches to a certain level of performance. This video will then be submitted to the airline's training department/officer who will then critique your flight.

If you think that is a lot to ask for, then imagine what the military VA groups might require. Most of their training is mission specific, so it might vary from branch to branch, or even within divisions. In the case of the Virtual Coast Guard, search and rescue procedures are taught, and grid work is part of that program. Obviously, this would be good to know if virtual SAR missions are going to be assigned to a new pilot. Opting for this flying all goes back to your level of commitment.

Flying The Line

As in the real world, training is just the first step to full-blown virtual airline flying. Depending on the VA, you will probably get assigned a smaller aircraft on shorter-leg trips. Like their real-world counterparts, most virtual airlines work with a seniority system based on the date of hire and total flight hours.

This system is then used to determine the pilot's timing for aircraft and schedule upgrades. As I've mentioned before, some smaller and/or less informal operations don't follow this system and allow their pilots to fly any aircraft on any flight in their route system.

Each airline has its own call sign, and it's interesting to note just how many flights for a particular airline are online at a particular time. If you are online with VATSIM or IVAO, you'll also notice where most of these flights concentrate. And speaking of these online services, you might want to get registered with one or the other if you haven't already done so. Most virtual airlines require you to be registered with these organizations, and it's pretty obvious why. You may want to follow Doug Horton's Flying Online series to stay on top of this.

Part of the adventure of flying for a VA involves maneuvering "in the system". In other words, realism really kicks in when you have to deal with flying a big jumbo jet, weather, and dealing with air traffic controllers. In the last issue I wrote an article entirely based on realism in your flight simulation flying. I invite you to take a look at it.

Of course, you don't have to be online to fly with a virtual airline. There are many pilots who choose to fly on their own, without the need of online ATC. For those of you with Microsoft Flight Simulator 2002, the program's new air traffic control feature is quite a nice substitute. I've found this to be extra helpful when flying in areas where there is no coverage of online controllers. This is especially true for the Caribbean and other sparsely controlled areas of the virtual globe.

If you don't have FS2002, or just don't want to use air traffic control services, that's fine too. The lack of ATC is never missed in situations where you would normally never have the chance to enjoy this luxury in real-life. Remember the bush flying groups I talked about a little while ago? This is a classic example of this type of situation. For these pilots (and others) the lack of a nagging controller is very sweet to the ears.

The Yoke's On You

With the growth of flight simulation and virtual airlines comes a host of products to make your flying easier and much more

exciting. Hey, there's nothing wrong with flying that Boeing 747 with a keyboard, but wouldn't a joystick, or better yet, a yoke and rudder pedal combination be just the ticket? You can bet your heavy iron it would be!

Cost is obviously an issue, but if at all possible, try to invest in some kind of hardware upgrade. You don't need the whole ball and wax, but a joystick and rudder pedals could do your flying wonders. Better flight controls translate into more precise flying, and that's the name of the game when flying for the airlines, virtual or real. Aside from that, keyboard flying just isn't fun!

Of course, there are those that go just a little overboard. You know, the ones that build a new addition to the house, or close off the garage to install a full cockpit mockup, complete with several monitors and a full throttle quadrant. Hey, don't get me wrong: more power to you if you have the time, space, and most importantly, the money. Unfortunately, I have only one of the three prerequisites on my side!

RAM, CPU, Money!

It's great to have all of the fancy hardware, but that won't do you a bit of good if your computer's performance is below par. Before a machine is bought, it is practically out of date. So it comes as no surprise that new versions of flight simulator programs are more demanding performance-wise than ever before. For this reason, you may need to invest in your machine with the likes of more memory, increased clock-speed and that oh-so-important video card.

Marginal machines will just not cut it anymore, especially with the likes of FS2002, Fly III and other demanding software. So, before investing in that new state-of-the-art flight simulator program, pump a few dollars into upgrading your machine if its performance is questionable. Check out Rod White's *Hardware Hangar* for tips on which way to go.

VAs - Are they For You?

That's a good question, and you are the only one that can answer this. Virtual airlines offer a host of fun and exciting flying opportunities. Flight simulation becomes even more exciting when flying in such a realistic environment. Virtual Airlines offer us the next best thing to sitting in that coveted left seat on a Boeing 747. But before jumping into this project, you just need to evaluate your time and interest. If you do join, you just might be amazed at how much fun you're having. I'll be looking for you at 35,000 feet! →

More Information: Here are some popular VAs and their web sites:

Tradewind Virtual Airlines: <http://www.tradewind.org>
 Metro Helicopters : <http://www.avsim.com/hangar/air/metrohelo/.htm>
 Cardinal Airlines: <http://www.cardam.com/>
 Bush Flying Unlimited: <http://www.bushflyingunlimited.org>
 Virtual Air Force Command: <http://www.vafc.50megs.com/intro.htm>



Flight Simulator Carrier OPERATIONS

By Doug Horton

During my third summer as a Midshipman at the U.S. Naval Academy (a long time ago!), I had the great pleasure and excitement of four weeks of flight training indoctrination at the Navy's pilot training facilities in the Pensacola, Florida area. I experienced seven training flights, the seventh of which was particularly exciting, because I spent a day on an aircraft carrier.

I was able to watch jet aircraft ("carrier quails") being flown by advanced student pilots, and I got to ride in a T-28 Trojan, a large reciprocating prop trainer, for a few carrier take-offs and landings. Unfortunately I didn't get to experience either a catapult shot or an arrested landing. But now, many years later, I can enjoy these experiences vicariously with PC flight simulation.

In this issue I'll tell you about what is involved in landing and launching aircraft from carriers in Microsoft Flight Simulator 2002, which are significantly improved by Richard Hogen's great freeware *ArrestorCables* program. Then, I'll provide information to get you started with simulated carrier operations, including descriptions of the carrier

facilities in FS 2002, and several add-on carriers, aircraft, and panels you can use. Lastly, I'll mention an improvement to the shareware *FSMeteo* real-weather program, which can further enhance realism in simulated carrier operations.

Carrier Operations Issues

There have been two customary means of facilitating carrier operations in Microsoft Flight Simulator. To facilitate arrested landings ("trapping"), it has been customary to use a flight dynamics editor to set a very high value of drag for selected aircraft spoilers, thus creating "super-spoilers." Users have then done their best to land in the area of the carrier's arresting cables and immediately use the keyboard "/" key to apply the spoilers.

If sufficient drag were set in the flight dynamics, the spoilers would then stop the aircraft before it rolled off the angled landing deck of the carrier. But there have been at least three problems with the realism of this method:

1. The spoilers are not available for normal operations, because if applied in flight just to slow down, for example, the aircraft would tend to "drop like a rock" from the sudden loss of speed and likely stalling.
2. The Standard Operating Procedure (SOP) in some carrier aircraft is to apply spoilers as part of normal landing approach, and if the spoilers have been setup to apply "infinite drag", they will not be available for this.
3. It is standard procedure for Navy carrier aircraft pilots to apply full

About the author:

Doug Horton had some U. S. Navy flight indoctrination at Pensacola, including one day on an aircraft carrier, but spent 12 years of active duty in nuclear submarines, with over 10,000 hours underwater. Since then, he has spent over 25 years in corporate and consulting jobs related to business management and technology, during which he has logged over a million miles as a commercial airline passenger. With over a decade of flight simulation experience, he has been a frequent program tester and writer. In the past two years, he has completed Private Pilot certification and an instrument rating. Simulated aircraft carrier operations is "unfinished business" from an enjoyable month with "Navy Air" many years ago.

smoke from the wheels or even crash-like visual effects. Clearly, better methods have been needed for carrier operations.

Arrestor Cables

Richard Hogen developed version 1 of his *ArrestorCables* program using the super-spoiler concept mentioned above, as an advanced means of facilitating carrier operations in Microsoft Flight Simulator. Richard set up data tables for the locations of the arresting cable zones for each carrier. Next, he interfaced his program with Peter Dowson's FSUIPC.DLL module, which can read and write to the Flight Simulator operating system.

Using the landing zone data, when the aircraft was "seen" by *ArrestorCables* as being in the landing zone through the FSUIPC interface, *ArrestorCables*



U.S. Navy photo of USS Eisenhower (CVN-69), underway at high speed with full air wing on deck.



Final approach in Prowler to *ArrestorCables* Nimitz-class carrier, showing deck details and static aircraft - cockpit view.

power as their aircraft passes over the arresting cables. If the tail hook doesn't catch a wire, the aircraft will continue flying or it will roll past the angled-deck recovery area and get back into the air safely for another try. In many cases, when using the super-spoiler method, applying full power would overcome the set-in drag, so the aircraft would not stop.

With the new method provided by the *ArrestorCables* program, spoilers can be set for normal and carrier operations simulated more realistically!

For catapult simulation in previous versions of Flight Simulator, users have been able to taxi the selected aircraft over the beginning of the catapult mechanism track,

pause the simulator, then go to Map View and set a speed such as 150 knots, and then click [OK]. After returning to the simulator you would experience an instantaneous application of the selected speed.

This worked fine in FS 5 through FS 2000, but in FS 2002, one other step appears to be necessary. It seems that the Map View flight parameter settings will not accept a non-zero speed if the aircraft is in a "landed" status. A simple workaround is to note the altitude, then after entering Map View, and increase the altitude setting by one foot. This works for catapulting in FS 2002, except that as the aircraft speeds toward the end of the flight deck, it is likely that the aircraft will drop back onto the flight deck. If you are observing this from an exterior view, you will see visual effects such as

automatically deployed the aircraft's super-spoilers to bring the aircraft to a quick stop.

Seeing the need for a catapult feature, and significantly, wanting to use deceleration for landings and acceleration for catapulting instead of super-spoilers, Richard contacted Peter, who developed a slight modification of FSUIPC. With these new features available, the second version of *ArrestorCables* was developed, and super-spoilers became unnecessary. The improved version would then be able to provide very realistic decelerated trapping and catapulting of aircraft, accompanied by great sounds provided by Aaron Swindle.

The *ArrestorCables 2* program uses the carrier landing zone data to sense that the aircraft's tail hook is "over the wires" and smoothly decelerates the aircraft to a stop,

allowing use of regular spoilers and full throttle at the point of touch down, as is done by real carrier aircraft pilots.

As a simulated carrier pilot with ArrestorCables 2, you can then taxi directly to any of the four carrier deck catapults, set the parking brakes, then press Shift+F9 to arm the catapult. After going to full throttle, followed by a simulated salute to the Cat Officer, you release the parking brakes and are quickly accelerated to flying speed with a very realistic sound.

And for helicopter enthusiasts, Richard has added files that provide landable surfaces to the helo pads on the ships in company with the default carriers Carl Vinson and Abraham Lincoln.

Richard continues to update and improve the ArrestorCables program, and he has added a feature for the catapult function

I had the pleasure of working (electronically) with Rich Hogen to provide a few suggestions and test the second version of ArrestorCables. Then, I got involved in testing some of his add-on Nimitz-class aircraft carriers. I've been impressed with his enthusiasm and abilities to add to carrier simulation, and I'd like to introduce him personally to our readers. Rich is an aerospace systems engineer by nature and training, although right now software engineering pays the bills. He has only had his hands on the controls of a real aircraft for several hours in a Piper Archer II. In the sim he prefers bush flights, general aviation, chopper work, and aircraft carrier operations. After enjoying the working cables and hooks in CFS2, he was highly motivated to create

Look for the parameter "spoiler drag," and reduce it to get acceptable operation.

Carrier Facilities in Microsoft Flight Simulator 2002

There are four default carriers in FS 2002:

- U.S.S. Constellation (CV-64) near San Francisco, California. The Constellation can be found by flying northwest from Half Moon Bay (KHAJ) on heading 320° or from San Francisco (KSFO) heading 280°. The carrier landing deck heading is 330°. The real carrier Constellation, in her 40th year of service, returned to her homeport of San Diego last September, after completing her 20th overseas deployment.
- U.S.S. Abraham Lincoln (CVN-72) near



Screenshot of Dean Reimer and Toshio Unuki's fully loaded F/A-18 Hornet ready to launch from Richard Hogen's U.S.S. Eisenhower (CVN-69), with automatic, animated blast deflector raised.

Final approach in Prowler to ArrestorCables Nimitz-class carrier, showing deck details and static aircraft - cockpit view.

that holds the aircraft during engine spool-up, so sliding forward is kept to a minimum in case the aircraft's brakes are insufficient for this purpose. Also, the "tweakable" parameters in the ArrestorCables.ini file are now accessible in the ArrestorCables 2 user interface with up/down buttons.

Some military aircraft you may purchase or download for use in carrier ops are furnished with super-spoilers, or both regular and super-spoilers. If you find aircraft that are provided with only super-spoilers as part of their flight dynamics, you can change them back to regular spoilers using the freeware AbacusFDE (Flight Dynamics Editor). This free utility works with aircraft designed for FS98 to FS 2002, and Combat Flight Simulator 1 & 2.

the ArrestorCables program for MSFS. Rich has always been a space and aviation enthusiast, and his claim to fame is that several years ago he was fortunate enough to be hired onto the Mars Global Surveyor operations team. He worked MGS operations from middle cruise through the mission redesign (required due to a damaged solar panel), a year of 24/7 "aerobraking" ops, mapping phase transition, Phobos imaging, and the critical High Gain Antenna deployment. Following that work, he spent a year doing operations development work for Mars 2001. Both MGS and Mars Odyssey are in Mars orbit right now. Rich lives in Denver, Colorado, with his wife, Lorraine Bell

San Diego, California. The Lincoln can be found by flying west from Imperial Beach NOLF (KNRS) or by flying south from North Island NAS (KNZY) direct to final, with a landing deck heading of 187°. The Lincoln is one of two FS 2002 carriers with a "meatball" visual landing system. The real nuclear-powered carrier Lincoln was commissioned in 1989 and is fully operational.

- U.S.S. Carl Vinson (CVN-70) near Maui, Hawaii. Vinson can be found by flying south-southwest out of Kahului, Maui Airport (PHOG), heading about 200°, until you fly past the island of Kahoolawe (Ka-hoo-la-vay). Vinson is the only default FS 2002 carrier with a working ILS on frequency 110.30 MHz, deck-landing heading of 191°.

The Vinson also has a "meatball" visual landing system. This carrier is part of a group of ships that become visible when you're about five miles out. In her 20th year of service, the real Vinson is fully operational. She stopped in Hawaii in January 2002 for a port visit after completing a regularly scheduled deployment in support of Operation Enduring Freedom.

- U.S.S. Kittyhawk (CV-63) anchored in Pearl Harbor, Hawaii. Kittyhawk is the only FS 2002 carrier not at sea. It is docked near the shore across the harbor from the U.S.S. Arizona Memorial. Take off from Honolulu International (PHNL), but be aware that flight operations would never take place in port in the real world. If you takeoff from the Kittyhawk, pull up sharply to avoid hitting the Aloha

and has an operating NDB on frequency 411.0. Take off from Monterey (KMRY) and fly southwest on heading 220° to the NDB, or use the included CVN-74.FLT file to start on the carrier.

Commissioned in 1995, the nuclear-powered Stennis is fully operational.

- USS Saratoga (CV-60) is found in CV602V10.ZIP, with an update in CV602V21.ZIP, by Robert Waszkiewicz. The "Sara" is operating near the U.S. Navy base at Guantanamo Bay, Cuba. Take off from Guantanamo Bay Naval Air Station (MUGM) and you'll see the carrier just a few miles south. By the way, after 38 years of service, the real carrier Saratoga was decommissioned in August 1994 and at the present time is at Newport, Rhode Island awaiting release from the Navy to become a museum at Quonset Point, Rhode Island.

there would be no operation of radio navigation aids in port, and no carrier aircraft operations would be conducted.

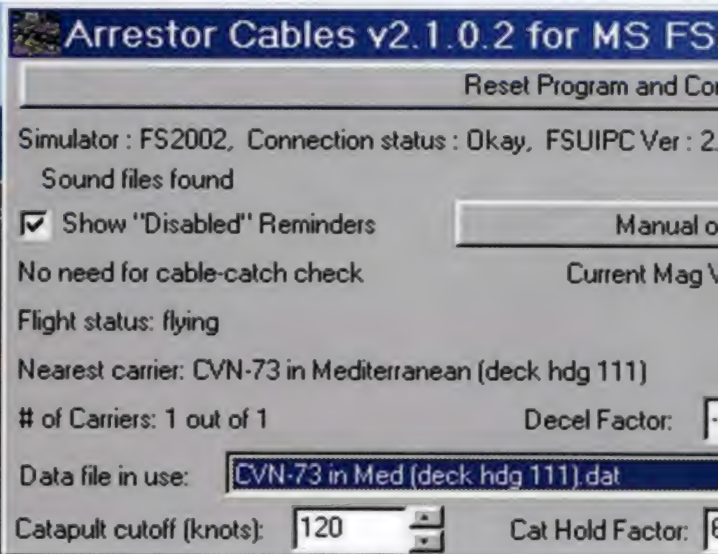
More Carriers

In addition to the ones I mentioned, Richard Hogen has added several additional aircraft carriers, and in the interest of placing these carriers around the world, there will be some duplication among carriers. Richard's carriers have specially hardened landing surfaces for FS 2002 to ensure that the flight deck, elevators, and hangar deck are landable. Features include: deck details (vehicles, deck crane, and crew), rotating Radar dish, ILS, NDB and VOR nav aids, refueling zone, static aircraft on deck, night lighting, startup flights, and *.dat files for ArrestorCables.

Using Javier Fernandez's detailed FS2S source files, Richard has provided common



Michael Gurezka's F-4 Phantom, with wings folded, parked on the deck of an ArrestorCables Nimitz-class aircraft carrier.



ArrestorCables user interface, showing selected data file, "tweakable" parameters, and other information.

Stadium. The real Kittyhawk is still operating after 40 years of service, and returned from Operation Enduring Freedom on December 23, 2001.

Add-On Aircraft Carriers

There are two add-on carriers, developed for FS 2000, that I have used for additional carrier operations. You can find them by doing a search on many of the Flight Simulator Internet sites, such as flightsim.com::

- USS John C. Stennis (CVN-74) can be found on flight simulator websites in file CVN74JF.ZIP, by Javier Fernandez. It is operating west of Big Sur, California

Both these carriers have additional details, such as aircraft service carts and vehicles on the deck of the Stennis. My favorite feature is the animated jet blast deflectors that automatically rise from the flight deck after you taxi to either forward catapult on the Saratoga.

In order to improve navigation around the default carriers, as well as the Saratoga and Stennis add-ons, I've used Enno F. Borgsteede's BGLGEN program to add ILS, VOR (simulating TACAN), and NDB radio navigation aids. The related scenery files can be found on our web site (link at the end of the article).

Note that I did not add nav aids to the Kittyhawk, which is docked in Pearl Harbor. Under standard Navy operating procedures,

textures for all carriers, found in the file CVNtxr2.zip, and he has "deployed" the following carriers for FS 2002 at the time of this writing:

- USS George Washington (CVN-73) in the middle of the Mediterranean Sea, in CVN73Md1.zip
- USS Dwight D. Eisenhower (CVN-69) off Norfolk, VA, USA and Oceana Naval Air Station, in CVN69N1.zip
- USS John C. Stennis (CVN-74) in Strait of Juan de Fuca, Washington, USA, in CVN74W1.zip (Note: this is separate from the USS Stennis for FS2000.)
- USS Theodore Roosevelt (CVN-71), in the Gulf of Oman, in CVN71_1.zip
- USS Harry S. Truman (CVN-75) south of

- Ivory Coast, Africa, in CVN75i1.zip
- USS Nimitz (CVN-68) east of Taiwan, in CVN68T2.zip.

Richard has also provided an update that places four animated jet blast deflectors on each of his carriers, which adds to the realism. Also, he's prepared a scenery update for NAS Oceana and NALF Fentress, Virginia that adds static aircraft to both fields, and adds night-lighted arrestor cables for practicing carrier "traps" at Fentress Field. You can find them under the Related Links/Downloads page on the ArrestorCables web site.

Carrier Aircraft and Panels

There are many freeware carrier aircraft available on familiar flight simulation websites. My favorites include the following; some of which were originally designed for

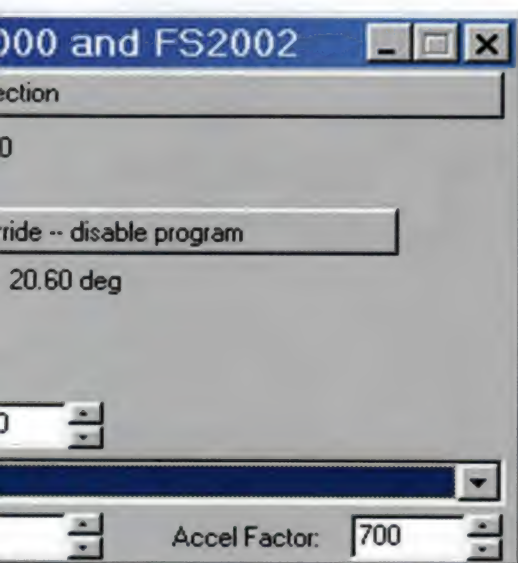
- Dean Reimer and Toshio Unuki's fully loaded F/A-18 Hornet, available in file CVW5-300.ZIP, with Paul Schwerdtfeger's panel in file F18EPN2K.ZIP. The weapons load is impressive and aircraft's flight dynamics seem "right on." The arresting hook operates with the spoilers, which need to be reset for lower drag if the Arrestor Cable program is used.
- McDonnell Douglas F-4B by Michael Gurezka, in file F4B_1474.zip. Modified for FS 2002, this aircraft has unique animation. The arresting hook extends with the third notch of flaps. With the fourth activation of the FS 2002 flaps extension command, the flaps and tail hook retract, and the outer wing sections fold up! I'm using Michael's F-4 PHANTOM

"Into the Wind"

Standard Operating Procedure (SOP) is for carriers to turn into the wind for both launching and recovery of aircraft. Since it is not possible to turn the carriers in Flight Simulator, I asked Marc Philabert, author of the shareware program FSMeteo, to provide an alternative: FSMeteo now turns the wind toward the carriers!

FSMeteo uses a connection to the Internet, along with FSUIPC, to feed weather into FS 2002 (and FS 2000). For each of the four default carriers, Marc has created mini-weather areas surrounding each carrier. For each of these areas, FSMeteo then uses the nearest weather reporting station for the wind speed, and then smoothly turns the wind direction from the reported direction toward the carriers.

The wind direction is about halfway between the carrier heading and the landing



More Information

For complete information and downloading the latest version of ArrestorCables, go to Richard's website at:
<http://www.speakeasy.org/~rhogen/arrestorcables.htm>

The AbacusFDE Flight Dynamics Editor is available for downloading at:
<http://www.flightsimdownloads.com/catalog/s372.htm>

The FSMeteo website, with text in both English and French, can be found at: [http:// www.fsneteo.com](http://www.fsneteo.com)

Doug's Carrier NavAids Scenery file can be found at:
<http://www.flightsimulatorworld.com/Files/CarrNavs.zip>

FS98 or FS 2000, but which work fine in or have been updated for FS 2002. Here again, you can find them at flightsim.com and other major FS-related Internet sites:

- USN VAQ-141 EA-6B Prowler, by Rick Sasala (Aircraft) and Justin Lamb (Textures), available in file EA-6BV2.ZIP. I use Dana McGee's A-6 Intruder panel with the Prowler, in file A6PNL98.ZIP. The Prowler comes with two air files, with both regular spoilers and super-spoilers. The modeling of flaps, slaps, and spoilers is superb, complete with internal red paint to show these control surfaces extended. The arresting hook operates with the last notch of flaps.

II panel for this aircraft, in file MDDF4PNL.ZIP.

- Various versions of the F-14 Tomcat, by Dino Cattaneo and others, including a few for FS 2002. I recommend searching the web for the latest Tomcat aircraft and panels, as there are many versions.

One word of caution: depending on the location of the aircraft, scenery designs, and reference points, you may find that when you try to place aircraft onto carrier decks, the aircraft will crash, or it may not be located on deck. This can be cured by changing your Aircraft Realism settings to Ignore Crash, and slewing up to get above the flight deck, then slewing back down to the deck.

deck heading, so that you're taking off or landing within a few degrees of "into the wind." This feature will be provided in the next major update of FSMeteo, scheduled for April. You can check Marc's FSMeteo website. To select this feature, you must add:

`CarriersWindFix=Yes`

into the [General] section of the FSMeteo.ini file in your Windows folder.

In the next issue, we'll discuss training for carrier operations, including descriptions of actual U. S. Navy procedures. Meanwhile, keep the "meatball" centered, and happy carrier landings! →



Round Robin ADVENTURE

Medevac to Chattanooga

By Al Pelletier

This Round Robin adventure takes place in the State of Tennessee, USA. It was flown with Microsoft Flight Simulator 2002, but can be flown with any flight simulator that has the required scenery, airports and nav aids. I also used the United States Base Terrain Upgrade from FSGenesis. The Great Smokey Mountains were just fantastic with this add on, and I strongly recommend it.

The scenario for this exercise is that we are flying for a medical air ambulance service. While on a routine pilot trainer for proficiency, we are diverted to do a Medevac (**M**edical **E**vacuation) at Gatlinburg Tennessee. The weather is going to be marginal in some places. We will be flying the default Beech King Air, which is used by many air ambulance companies. Of course, there is nothing wrong with flying another suitable plane. However, while doing so remember that you must be able to land and takeoff on a 5000' runway. Keep in mind that things will be happening very fast in this exercise as well. So be *ready* and *prepared*!

Round Robins

If you have done previous Round Robins, skip the next paragraph, jump right in, and have fun. For the experienced flyers, please be patient through all of the explanations, directions and extras. I direct this at newcomers to the flying world. I must stick to plain language.

For those who are new to this, Round Robins are published with the intent of having flight-simmers fly, look at the scenery, refresh our geography, practice our cross country navigation, do some approaches at different airports all over the world, and have some FUN.

In the messages, you will be getting information like: airport departure and runway numbers, VOR and ADF frequencies enroute, two or three middle airport destinations, and instructions for either VFR or instrument approaches. Then back to your point of departure (Round Robin). You will also be given ILS and LOM frequencies, visibility minimums, procedures etc. After you do a few of these, you will have a much

better command and understanding of the different types of published procedures. You will learn to handle a lot of information in a very short time, while still maintaining control of your aircraft.

May I suggest, that you READ the route a couple of times before starting out, so that you'll have the flight plan fairly clear in your mind. Especially in a fast aircraft, there isn't much time to spare and definitely no room for errors. Remember this rule: "Never let an aircraft take you somewhere your brain didn't get to five minutes earlier".

Note that for the purpose of this adventure, we will pretend that we are getting Radar vectors to different VORs or ILS interception points. In the "Real" world of today, aircraft usually get vectors to the interception points, to insure proper separation. I'm also assuming that you will have a good look at the Approach Plates for each segment. If they are not all published in the magazine, you can get them at my web site also. Check for address below.

Chattanooga Lovell Field (KCHA)

To:

Crossville Memorial (KCSV)

To:

Knoxville McGhee Tyson Airport (KTYS)

To:

Gatlinburg Pigeon Forge (KGKT)

And back to:

Chattanooga Lovell Field

Total distance is approximately 267 nm.

First leg

Chattanooga Lovell Field (KCHA)

To

Crossville Memorial (KCSV)

Approximately 66 nm

- Select Lovell from the Go To Airports menu.
- Set the season to spring (April) and the clock to 07:30.
- Adjust your weather to a 3500' ceiling with overcast 7/8 Status clouds, wind from 210 at 22 kts, gusting to 28. Moderate to Heavy rain.
- Dial in the CHOO-CHOO (GQO) VOR at frequency 115.8 on NAV2. Also, tune in the localizer (I-CSV) at frequency 109.1 and set the OBS course to 255 on your NAV 1 radio in preparation for an ILS approach to runway 26 at Crossville (actual course 255 degrees, elevation 1881' and Runway length 5418').
- Taxi to the active runway, per ATC

instructions. Upon clearance, takeoff making a left climbing turn to 7000', tracking the CQO VOR to on top. This will happen very quickly.

- On top of CQO, turn left to heading 010, then dial in and track the HINCH MOUNTAIN (HCH) VOR at frequency 117.6 Note: If you are using the ATC in FS2002 for this adventure, you may be receiving vectors for an ILS approach to runway 26 at KCSV almost immediately after takeoff. If so, follow ATC instructions!
- Track the HCH VOR to on top.
- 15 nm out of HCH, descend to 4200'.
- Over HCH, turn right to heading 030. Continue for 3 miles past the localizer beam, and then turn right to heading 210 to intercept the localizer. You are more or less doing a 180-degree turn.
- Intercept the localizer and continue with the approach. 5 nm back you are cleared for a touch and go at Crossville runway 26
- Do a Touch and Go on runway 26



Low altitude chart for Chattanooga

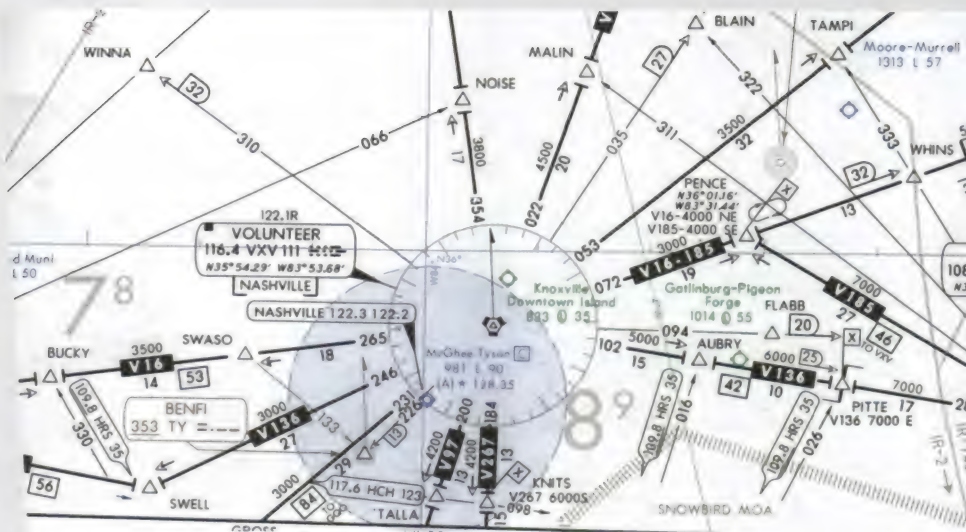


Sectional map for Chattanooga

Crossville Memorial (KCSV)
To
Knoxville McGhee Tyson (KTYS)
Approx 72 nm

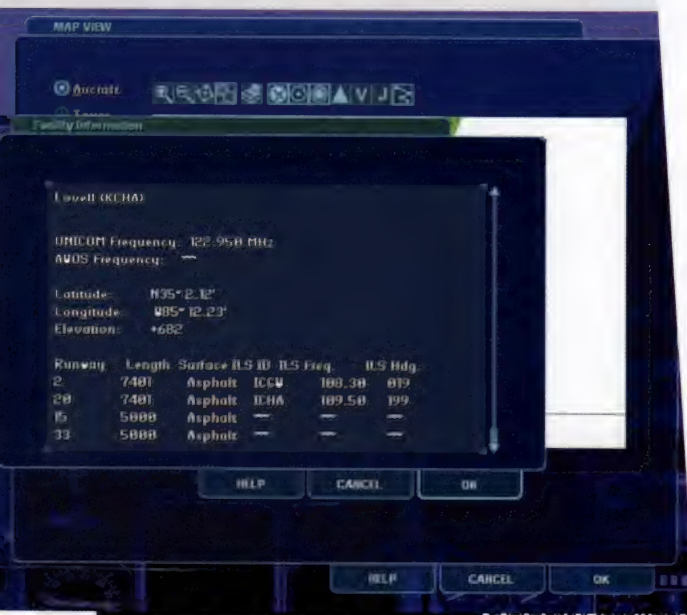
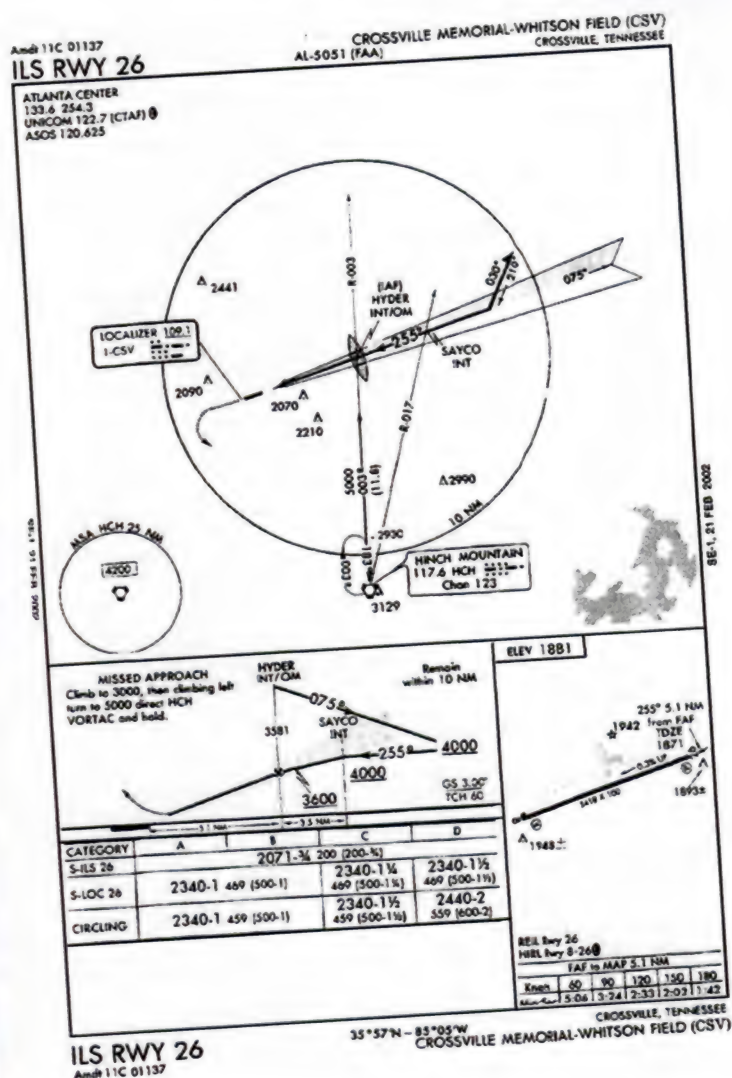
- The weather is still the same.
- Climb to 5000', maintaining runway heading, and then turn left to heading 120 and track the HCH VOR to on top. Continue climbing to 8000'.
- Over HCH, turn left to heading 080. Dial in and track the VOLUNTEER (VXV) VOR at frequency 116.4 until on top.
- 20 nm out of the VXV VOR descend to 6000'.
- While descending, dial in the localizer (I-BUI) at frequency 111.7 and set your OBS course to 228 on your NAV 1 instrument in preparation for an ILS approach to runway 23R at Knoxville (actual course 228, elevation 981' and runway length 9008'). Again, if ATC instructs you to land on 5L, do so.
- Over VXV, continue your descent to 3600' and maintain your heading for 4 miles past the VOR, followed by a left turn to heading 260 to intercept the Localizer. Again, follow all ATC instructions.
- Intercept the localizer and continue with the approach.
- 5 nm back you are cleared for a Touch and Go on runway 23R. Check to make sure your gear is down.
- Do a Touch and Go runway 23R

Remember if ATC vectors you to a different runway, you can get all of the runway and navaid information by going to World/Map View, and double-clicking on the airport.



Low altitude chart for Knoxville

Approach plate for Crossville Memorial





The FSGenesis Terrain Upgrade is available at:
<http://www.fsgenesis.com>

Knoxville McGhee-Tyson (KTYS)
To
Gatlinburg Pigeon Forge (KGKT)
Approx 25 nm

While on final approach at Knoxville, we are being asked to perform a Medevac at Gatlinburg. The patient that we will pick up needs to be transported to Lovell for special medical care. We will have to maintain VFR conditions on the way over, as there are no nav aids available at that airport. We can get help in the form of vectors from ATC and the use of the VXV VOR for radial and DME information. Our Co-Pilot only took a minute to figure out that we'll have to fly down the 100 radial of the VXV VOR and we should have Gatlinburg at 17.5 nm from VXV VOR. Gatlinburg is at the foot of the Great Smokey Mountains, which has peaks up to 6600' in this area.

- After the Touch and Go at Knoxville, climb to 2500', maintaining runway heading. Then turn right to heading 060. Dial in and track the VXV VOR at frequency 116.40. You should dial in this VOR on NAV 1 and set 100 on the OBS, so that we can fly down the radial once we get there.
- Over VXV, turn right to heading 100 to establish on the 100 radial, maintaining VFR flight rules. You might want to start your turn about 2 nm before the VOR. This will compensate for the turn, and help to establish on the 100 radial.
- You should be able to go up to about 3000' and have good visibility. Remember to keep your speed under 200 KIAS.
- 15 nm out of VXV descend to 2000'. You should have the airport visual at about 12 nm out of VXV.
- Establish downwind for runway 28, which will mean flying right down the runway and making a 180-degree turn. With a good eye, you might see the windsock just west of the refueling area.
- Setup for a full stop landing on runway 28.
- 5nm back, you are cleared to land on runway 28 at Gatlinburg. Check to make sure your gear is down.
- Land and take the first exit right.



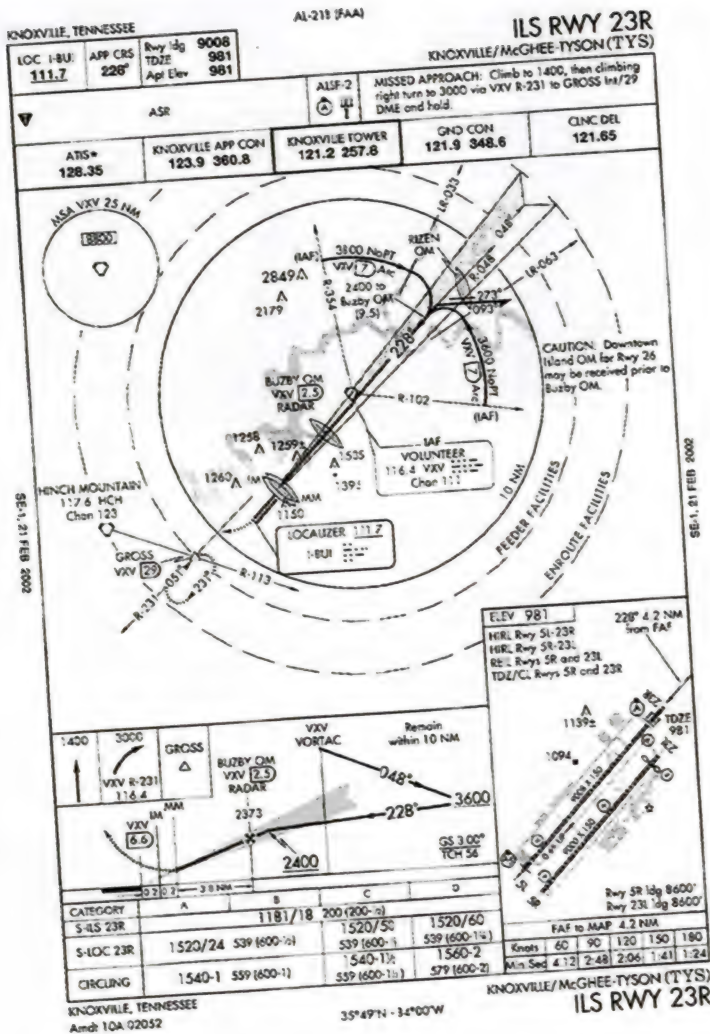
Fourth Leg

Gatlinburg (KGKT) Back
To

Lovell Field Chattanooga (KCHA)
Approx 110 nm

- The weather still the same, or at your discretion
- After picking up our passenger, taxi to and takeoff from runway 28, making a right climbing turn to 9000'. Then track the VXV VOR to on top.
- On top of VXV, turn left to heading 230. Tune in and home the ATHENS (MMI) NDB at frequency 242 to on top. You will get reception about 8 nm past the VXV VOR.
- On top of MMI, turn right to heading 248. Tune in and home the DAISY (CQN) NDB at frequency 341. Dial in the CHOO-CHOO VOR at frequency 109.5 on NAV 2. Also, dial in the localizer (I-CHA) at frequency 109.5 on NAV 1 and set your OBS course to 199 in preparation for an ILS approach to runway 20 at Chattanooga Lovell Field (actual course 199, elevation 682', runway length 7401'). Here again, if ATC vectors you to runway 2, follow their instructions. You might want to keep the DAISY NDB slightly to your left, for a better intercept angle on the localizer (See approach plate)
- 25 nm out of the CHOO CHOO VOR, descend to 3000'.
- Intercept the localizer and continue with the approach.
- 5nm back you are cleared for a full stop landing at Chattanooga Lovell Field. Check to make sure your gear is down.
- Land and take the first left to terminal.

Mission Accomplished!



Approach plate for Knoxville

Flying over the Smokey Mountains

Many thanks to Chris Squire (Chris is a retired military pilot with over 12,000 hours) and to DR. Ron Brown of Comox (Former CAF Flight Surgeon) for test flying the route. Also, thanks to Major Tom Mitchell of Comox for all the logistic help.

Cheers and keep on reading Flight Simulator World. →



HARDWARE

H A N G A R

By Rod White

Corsair has been known over the years for their high-end memory products. Lately they have definitely squeezed their way into a slot of the top five in terms of system memory products for high-end PC gaming rigs. They did this by offering memory that's guaranteed to run at very high specs, or overclocked if you will. In the end this makes their products very attractive to hardcore gaming enthusiasts who try to squeeze every last frame per second out of their machines.

So I was really taken by surprise when I got a first look at their line of Cobra products, because it's not every day that, out of the blue, a memory company takes on the do-it-yourself PC building market with a barebones system of their own.

The Cobra packages are essentially high-end bare bones systems, lacking only the processor, hard drive and CD-ROM.

The Cobra 300GT model comes equipped with a Ti-500 GeForce 3-based video card with 64 MB DDR memory, whereas their other package, the 266LE, does not. The other main difference between the two, other than cost and the video card, is that the Cobra 300GT is guaranteed to run at up to 300 MHz Front Side Bus (FSB) speed. Basically this means overclocked. The 266LE is configured to run at 266 MHz.

The components used are also worthy of mention, as the foundation of the 300GT starts with an EPoX 8KHA+ motherboard, which is based on the VIA 266A chipset for AMD Athlon processors. It should also be noted that this chipset is

currently the performance leader, and the most current offering.

This board offers six PCI and one AGP 4X slot, three DIMM slots for DDR DIMM modules (a total of 1.5 GB of memory is supported), onboard IDE controller with Ultra DMA 100 support, support for up to 6 USB slots, and AC'97 audio onboard. This is a Socket A board, so most any Socket A processor from AMD that's currently on the market is supported, from the low end Duron and all the way up to the new Athlon XP line of processors. The AWARD bios employed by the 8KHA+ provides a plethora of parameter options, making it a very desirable board for system tweekers.

The case is a modified all-aluminum Skyhawk MCR-4610, complete with a unique window cut into the side in the

shape of Corsair's logo, with a nice blue cold-cathode light. Temperature probes for the CPU and power supply are provided via LED readouts installed in the very top drive bay. It also has front mounted ports for your soundcard connections (with a volume dial!), USB, Gameport/Joystick, PS/2 and even a Firewire port.

In the way of drive bays you get four external 5.25 drive bays, two external 3.5 drive bays, and four internal 3.5 drive bays. But remember that one of the external 5.25 bays is already occupied with the LED readouts for the temperature probes. A removable motherboard tray is also a standard feature with this case.

Powering this beast is a whopping AMD approved 400 Watt power supply from Sparkle, giving you more than enough juice. Inside the case you'll also find that they took the time to try and keep it clean under the hood by using plastic automotive wire tubing to conceal the leads from the power supply.

Three 80 mm case fans provide very adequate cooling. Not to mention that, by design, an aluminum case dissipates heat far better than heavier steel cases. An Alpha PAL8045 heatsink/fan combo is included for cooling, and WOW... what a monster this thing is!

I like this heatsink a lot, because most Socket A heatsink requires a great deal of pressure being applied to clamp

them down, which in turn can crack a CPU core in a heartbeat if you're not careful. Removing a heat sink to replace or upgrade the CPU can often pose a problem, as those little tabs around the socket that hold the heatsink down can become damaged due to the pressure required to close them. This Alpha heatsink uses spring-loaded screws that stop once the optimal pressure has been applied. This makes installing and removing a Socket A CPU a lot less dangerous, not to mention a great deal easier.

Of course, memory is also provided. Corsair includes a single 256 MB DIMM module of their XMS 2400 DDR memory, which they call "Extended Memory Speed". It yields a memory data rate of 300 MHz (150 MHz FSB), or 2.4 gigabytes per second when set to run that way. The draw of the 300GT platform is the fact that it's guaranteed to run as high as 300 MHz FSB, in part due to the use of this memory chip.

The video card, which is exclusive to the 300GT model, is an Asus V8200 Deluxe. This is an NVidia Ti-500 based GeForce 3 card that features 64 MB DDR memory and video-in/out. Actually, it's one of the best performing, most feature rich Ti-500-

based card on the market today! As an added bonus they even include a full blown software bundle too, with full copies of Messiah, Sacrifice, and Star Trek: New Worlds. By themselves these titles are nothing to write home about, but are decent games to toss in for free.

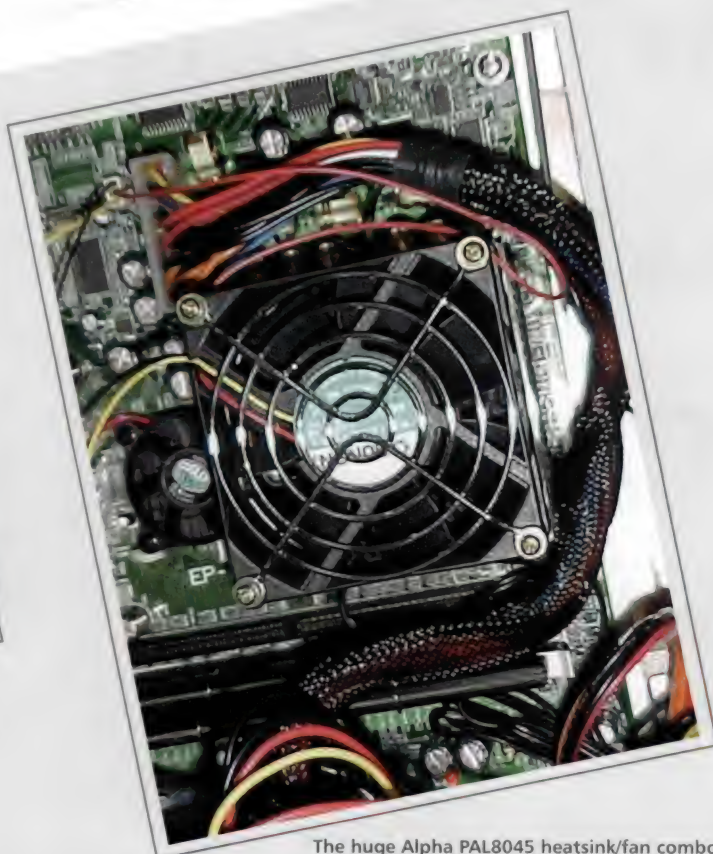
Getting down and dirty with the Cobra and the Athlon XP 2000+!

We took the Cobra 300GT out on the track with a brand new AMD Athlon XP 2000+ under the hood, which is currently AMD's fastest processor. This new processor features all of the same benefits and improvements that the Athlon XP 1900+ has to offer, but clocks in a little faster at 1.67GHz. It is in the same performance ballpark as a Pentium IV at 2GHz.

Just recently we've seen a few comparisons where the Athlon XP 2000+ trails the new "Northwood" Pentium IV 2.2GHz by so little that the Athlon XP 2000+ becomes not only the best choice



The AMD Athlon XP 2000+



The huge Alpha PAL8045 heatsink/fan combo

economically, but without sacrificing much in the way of performance either. At press time the Athlon XP 2000+ runs about \$250, whereas the "Northwood" Pentium IV runs about \$470. This is based on pricewatch.com quotes.

Installation was a breeze due to the outstanding case design. We also added:

- A Promise TX2 PCI Raid controller card
- Dual 60 GB IBM 60GXP hard drives in a Raid 0 configuration
- A 40X/16X DVD-ROM drive from I/O Magic
- A brand new Philips DVD-ReWriter drive (2.5X8 DVD-RW and doubles as a 12X10X32 CDRW drive too!)
- A Philips Acoustic Edge 5.1 PCI soundcard, instead of going with the on-board audio.

Corsair claims to be able to hit 300 MHz (150 MHz FSB) with the 300GT, and I have no doubt that this rig will do it. But anything higher than 280 MHz (140 MHz FSB) started to freak out the Promise PCI Raid controller card. Nonetheless, even at 140 MHz FSB things were rock solid. I've seen instances where others were able to hit as high as 330 MHz (155 MHz FSB) with the 300GT by sticking with the onboard IDE controllers.

So Corsair isn't lying when they said this rig is ready for 300 MHz operation, but external Raid controllers and other devices are always tasked beyond spec when

running overclocked. That's something to keep in perspective. Corsair does warranty the items that ships with the system, but not anything else that you plug into it, so keep that in mind too when trying to hit 300 MHz and beyond.

Quite honestly, when you're running with a processor like the Athlon XP 2000+, overclocking is really overkill. But it's an option that many like to pursue, and if there wasn't a market for it, the Cobra 300GT wouldn't exist.

The screenshot shows the Corsair Micro website with a dark, swirling background. At the top, the URL 'www.corsairmicro.com' is visible. Below it, the text 'MEMORY AT INTERNET SPEED' is displayed. A search bar contains the text '300GT'. On the left, the Corsair logo is shown above a navigation menu with links: 'Products', 'News & Reviews', 'How to Buy', 'About Corsair', and 'Technical Resources'. Below the menu is a 'COMPATIBILITY LAB' button and a link to 'Ask the RAM Guy' with a question mark icon. On the right, several promotional banners are visible: 'Corsair Breaking News ALL-RIGHT!!! NOW AVAILABLE! 512MByte XMS2700 ultra-performance modules!', 'Check This Out!! Heat Spreaders now available on many XMS modules', 'The RAM GUY outlines the qualification and testing of XMS overclocking memory.', and 'cobra Build the Ultimate Gamer'.



The XMS-2700 DIMM

As for system stability, the XMS 2400 memory and all of the other components provided by the Cobra 300GT run like a top with all of the other components and devices and controllers we incorporated into the system. The Cobra 300GT, powered by the Athlon XP 2000+, performed flawlessly with titles like Flight Simulator 2002, IL2 Sturmovik, Comanche 4, Falcon 4, Janes USAF, and anything else we threw at it.

Documentation is an area I should not forget to comment on either, because Corsair did a fantastic job in that respect. A nice ring binder is included, very much like those provided by system vendors, with in-depth step-by-step instructions on everything from installing the heatsink to overclocking. Even pictures with examples of how to install the processor, heatsink and hard drive are provided, so those who are not experienced in working under the hood can be up and running in no time by simply following the bouncing ball.

Conclusion

At \$1200.00 the Cobra 300GT, combined with the Athlon XP 2000+, sounds like a surefire winner no matter how you look at it. But there is one area where it might not look so appealing to some flight simulation enthusiasts. The fact is someone could go out and purchase all of the parts used in the Cobra 300GT individually for a few hundred dollars less. However, they would either have to purchase a different pre-modified case elsewhere (which can be pricey), or purchase the same Skyhawk case stock, then do all of the mods themselves. This would be a great deal of work.

This is where things get a little complicated. The Cobra 300GT is intended for do-it-yourselfers, and these people like doing their own hands-on modifications. Like building the entire machine from the ground up with handpicked components,

using a Dremel tool to cut their own window case mods, and so on. Therefore, the Cobra 300GT is more likely to appeal to the kind of PC enthusiast who isn't afraid to get under the hood, but does not want to wire the whole case, install a motherboard, and essentially build the whole thing from the ground up. Semi do-it-yourselfers if you like.

Most barebones systems usually consist of bargain priced components, as being cheap is usually the draw of a barebones rig. But you get what you pay for in the realm of computer components. The motherboard included in the average barebones configuration has onboard video and audio, along with other limitations. Not the least of which being a no-name or "house-brand" motherboard; definitely not the makings for a high-performance rig. The Cobra 300GT is all about high-performance. There are no cheap components in this configuration, unless you add them yourself, and the price reflects just that.

Corsair tells us that for now at retail the 300GT and 266LE are available at Fry's stores, and online through a few different online vendors that are listed at their website. The Cobra 300GT combined with the components we provided, and AMD's Athlon XP 2000+ processor makes this rig the fastest AMD based system we've ever seen firsthand, one very formidable machine for almost any task. All in all I think it's a great concept, one that should go over well.

Corsair: XMS 2700 333MHz DDR SDRAM

Another new product from Corsair is their XMS 2700 333 MHz DDR SDRAM DIMMs. These DIMM modules support a memory clock speed of 166 MHz, which yields a memory data rate of 333 MHz, or a whopping 2.7 gigabytes per second! The catch is that you need a motherboard that supports the new proposed 333 MHz FSB (essentially 166 MHz in the bios) to take

full advantage of the 333MHz data rate.

There are only a few motherboards out there right now that fully support 333 MHz FSB (SiS 645 based boards). However, you can use this memory in current systems as well at 150 MHz and beyond depending on the components, and on how well the components can handle running at that spec.

We ran two 256 MB DIMMs of Corsair's XMS 2700 memory in the Cobra 300GT at 280 MHz (140 MHz in the bios) with perfect stability, and I have a notion that if it were not for the PCI Raid controller card being finicky, we may very well have been able to hit close to 333 MHz. These are heavy duty DIMMs too, as they come with integrated heat spreaders (very much like a heatsink on video card memory) to dissipate heat.

The catch is that this memory doesn't come cheap, because you're talking about \$140 per 256 MB DIMM, where 256 MB of Crucial or Kingston PC2100 runs about \$90. But neither of those competitor's products can hit even close to these specs. So it's another case of getting what you pay for, because if you don't plan on trying to squeeze every last frame per second worth of performance out of your system (plus having a motherboard that will fully support the 333MHz FSB), then stick with Crucial, Kingston and other memory products. →



More Information: You can see more on the Corsair web site at: www.corsairmicro.com



Flying ONLINE

Training With FS 2002 ATC

By Doug Horton

One of our challenges in this regular feature is communicating useful information to both new and experienced flight simulator pilots. In the past few issues, we've provided detailed information for experienced users on instrument approach and landing procedures. In this issue, we're providing some ATC training for readers who may be new to flying online under simulated air traffic control.

For our experienced readers, I think you'll find this feature helpful as well, because even as an instrument-rated private pilot and aircraft owner, I routinely use FS 2002's great new ATC feature to rehearse real-

world instrument flights before actually flying them.

You have likely heard or read about flying with the Virtual Air Traffic Network (VATSIM) or the International Virtual Aviation Organization (IVA0), but perhaps you feel you're not quite ready to log on and fly online. Or maybe you just want to practice without actually being online. Certainly that's understandable, as there is a lot to learn. And not wanting to be embarrassed by being a "newbie" is reasonable as well.

We have provided a lot of training in ATC concepts for flying online over the past two years in this magazine. But now with

Microsoft Flight Simulator 2002, we have a very realistic ATC feature that can help you practice for flying online with VATSIM or IVA0.

Flight Planning with FS 2002

Over the years, the most anticipated feature in the Microsoft Flight Simulator series has been some form of built-in, interactive air traffic control. Over the last decade thousands of flight simulator pilots have worked through add-on ATC environments that use the FS Adventure format, using programs like the ProFlight series, RealATC, and Radar Contact.

These programs have provided good simulated ATC experiences with ever-increasing realism. However, the FS Adventure format is limited, and in spite of the success of these add-on programs, many users have asked for a more interactive built-in feature, which is now provided in FS 2002. Users have also hoped for an intuitive interface, and Microsoft has certainly succeeded in doing this with their new ATC feature.

FS 2002 users will find the new ATC feature surprisingly realistic and very easy to use. One strong contributor to its realism is that many of the Microsoft Flight Simulator development team members are real instrument-rated pilots, and it's their voices we hear as the ten included pilot and controller voices.

Realism is also enhanced by the fact that there is some randomness built into the FS 2002 ATC program, so you will hear different ATC phasing and controller directions if you repeat a flight. Additionally, though previous programs provided ATC "chatter," the new Artificial Intelligence (AI) feature includes dialog between ATC controllers and visible aircraft on the ground and in the air around you, making the environment truly interactive.

We'll continue this discussion as real pilots do, by planning a flight. We can use the built-in flight planner, or we can use add-on programs that can export flight plans to FS 2002, such as FSNavigator, Super Flight Planner, or FSBuild. For simplicity, we'll work with the built-in FS 2002 flight planner to select the departure, route, and destination.

You can access the FS 2002 flight planner from the startup screen, or you can find the flight planner on the **Flights** menu. I've selected a flight from Sacramento Executive (KSAC) to Metro Oakland International (KOAK). We'll make this relatively short flight in the default Cessna 172SP instead of an airliner, so that ATC directions don't come too quickly. Also note that I've selected an IFR flight plan, and VOR to VOR routing.

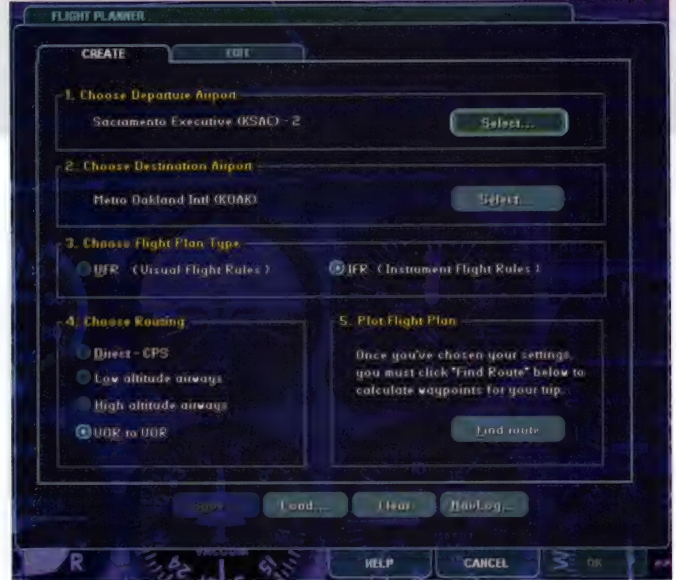
After clicking the **Find Route** button, the flight planner's map feature pops up so you can edit the plan. In this case, delete the SAC VOR and drag the red flight path line to add the TZZ and CCR VORs to the plan. It's a bit longer this way, but you'll have two interim radio navigation aids. Also, select 4000 feet as the planned altitude. Remember that IFR rules use even thousands of feet for westbound flights, and odd thousands for eastbound flights.

Save the flight plan after you are finished editing it. Note that FS 2002 automatically provides a long filename with departure and destination airports spelled out. You can change this name if you wish. Finally, it's important to click the NavLog button, study the flight plan, and then print it. Notice also that the NavLog includes information on VOR frequencies, as well as planned headings, leg distances, estimated ground speeds, fuel use, and leg times. Of course, this plan is generated without consideration of wind direction and speed, which will affect headings, ground speed, and times.

AI Aircraft

As an added feature, FS 2002 provides interactive Artificial Intelligence aircraft instead of the former lifeless dynamic scenery aircraft. One of the best features about the new AI feature is that for our ATC training exercise, you'll also hear ATC communications with other AI aircraft. Since you may also see, or even hear the AI aircraft (if one is close to you on the ground, for example), the simulated "chatter" you hear while you are using the ATC feature actually relates to the environment around you.

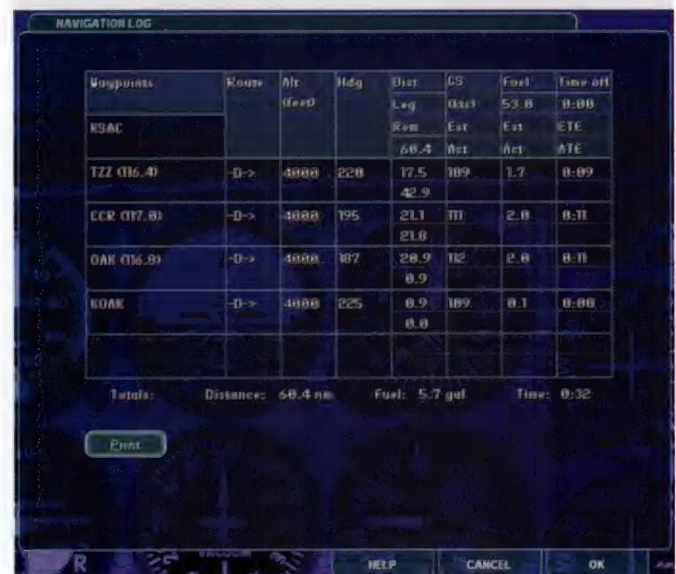
I also stress the "intelligence" part of AI, because these aircraft are smart and will wait for you if you're in position for take-off, for example. On the other hand, you may need to wait for them when taking off or landing. This is very realistic for ATC training, and for training in flying online in general. You'll need to pick out your callsign from among others and follow ATC directions for your aircraft, just as you would when flying online. It's also realistic because you are not just in your own little world. You can't just taxi up to a runway and take off on a whim in the VATSIM/IVAO environment either!



Flight planner interface for IFR flight from KSAC to KOAK with VOR to VOR routing.



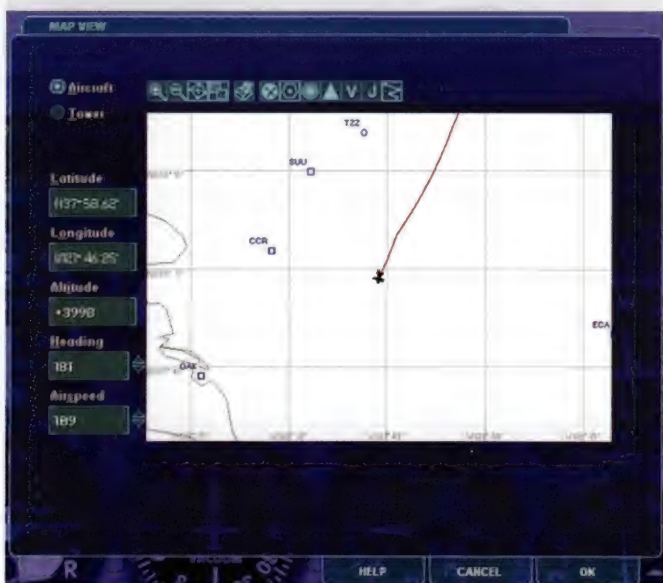
Flight Planner edit screen, after deleting SAC VOR and adding TZZ and CCR VORs to flight plan.



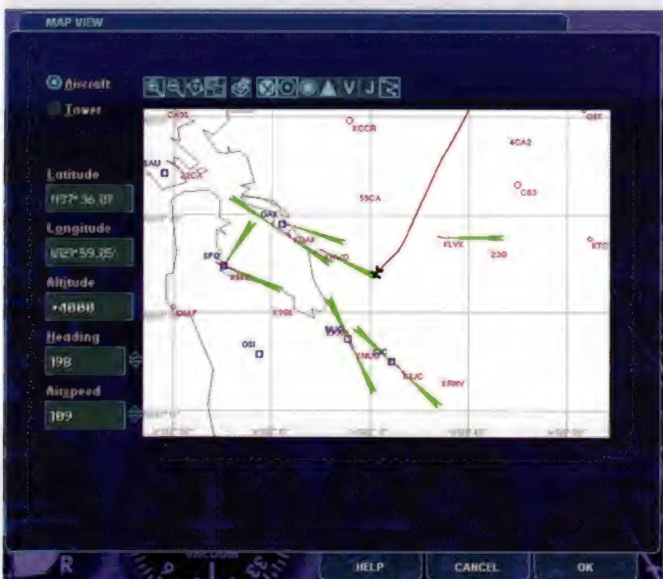
The Flight Planner Navigation Log shows a variety of useful information.



Cessna 172SP, with radio stack and ATC interface dragged and resized to convenient locations.



Map View showing how flight was vectored for runway 29 approach at Oakland, though flight plan was filed via TZZ and CCR VORs.



Map View showing aircraft position at beginning of Approach phase inbound to KOAK.

ATC Flight

- **Pre-Flight.** Now, we're ready to get the aircraft set up. If you're not already at KSAC, use the **World/Go To Airports** feature to get there. It's best for realism if you choose a ramp position. This is especially important when you fly online with VATSIM or IVAO, because you **must not** start on a runway. That's "runway incursion" and it's one of the major causes of real-world aircraft accidents on the ground. Select the Cessna 172SP, then open its radio stack, drag, and resize it to fit in the upper right-hand corner of the screen.

Once your flight plan and aircraft setup is complete, you're almost ready to start the flight. All you need to do is press the [`] key (the key to the left of the "1" key on U.S. keyboards). That will bring up the transparent ATC dialog box with a series of sequential menus. Thereafter, radios and transponder will be auto-tuned and you will hear any of up to 10 voices, which will provide completely realistic ATC directions.

By the way, you can select the pilot voice for FS 2002, but unlike a precedent in other products like the ProFlight series ATC add-on, the selection box doesn't provide samples of the voices, so finding a favorite voice may take several trials. After you get the ATC dialog box, I recommend dragging it to the upper left corner of the screen. Also, you may wish to drag the right-hand border a bit to the left.

- **ATIS.** Now it's time to start your engine. If you have not done so already, turn on the avionics switch, and check the ATC menu. You should see two choices: tuning Executive Ground on 125.000, and tuning ATIS on 125.500. Before checking the ATIS report, I recommend downloading real weather. Then, press number 2 to get the weather report. Its good practice to write it down, along with its phonetic identifier. In particular, note the wind and cloud situation. I chose this route because I've found it to be clear almost every time I've flown it, except that the weather might deteriorate as you approach the Oakland airport. After getting the ATIS report, note that there's only one menu choice left- tuning to Ground - so press number 1 to have FS 2002 automatically tune the radio for you. Note that if you wish to tune your radio manually, the menu will change to the next choice, which shows calling ATIS (even though you already did), and requesting your IFR clearance.

- **Clearance.** Before getting your clearance, I'll share with you a mnemonic that you can use to write down your clearance: **C**leared to, **R**oute, **A**ltitude, **F**requency for **D**eparture, and **T**ransponder setting. So, press number 2 to request your IFR clearance. It should read something like: "Cleared to Oakland airport as filed. Fly runway heading, climb and maintain 4000. Departure frequency is 119.1. Squawk 6737 (or other setting randomly selected by FS 2002)." Select the choice for repeating or reading back the clearance.

- **Ground.** Select "Request Taxi IFR." In my case, based on the wind direction (remember that FS 2002 is smart), I was directed to taxi to runway 2 and hold short. Borrowing previous simulator programs, FS 2002 offers a progressive taxi option if you don't have an airport diagram.

- **Runup.** I'm inserting this step because it's realistic for propeller aircraft, and it provides a chance to set up communications and navigation. After takeoff, Tower will direct you to call Departure, and though you can use the auto-tune feature, it's good practice to set this as the standby frequency on COM 2. I'll set 1191 on COM 2. Also, I know from the flight plan that the first waypoint is the TZZ VOR on 116.4, on heading 220, so I'll set that frequency on NAV 1 and set the OBS 1 bearing to 220.

Finally, while the engine warms up, I'll use the Map View to scroll and zoom to KOAK and examine the FS 2002 Airport/Facilities information to get the Tower and ILS frequencies, as well as ILS IDs for KOAK.

- **Tower.** After the simulated run-up, taxi to the hold short line of the assigned runway, and note again that FS 2002 detects that you're there and offers tuning the Tower frequency of 119.5. Select the Tower, select Request Takeoff Clearance IFR, listen to your pilot request, and standby for clearance for takeoff. Surprisingly, I heard an AI aircraft being directed to hold short of my runway for "Cessna traffic." I looked behind me, and sure enough, there was another aircraft waiting for me to take off.
- **Departure.** After climbing to about 700 feet, while still on runway heading, I turn on the autopilot to reduce my workload. This is up to you. Tower called me and directed that I call Departure on 119.10. Departure "rogered" my check-in, then directed that I turn right to 185 and "climb and maintain" 4000 feet. Suddenly, the airwaves were busy, because Departure was talking to an aircraft behind me, and also, to a United flight. Shortly thereafter, Departure indicated my distance from Oakland and told me to expect the runway 29 approach. By the way, in FS 2002, this "expect" transmission comes too soon for most propeller aircraft. It happens about 65 miles out, regardless of your speed. Nevertheless, this triggered me to click on Map View and its Airport/Facilities Directory feature to confirm the frequencies I might need for KOAK, including the ILS frequencies.



Final approach to landing at Oakland International runway 29, in Cessna 172SP, with Virtual Cockpit view.

- **Enroute.** Next, Departure directed me to a course of 220, which lined me up for navigating to the TZZ VOR. However, I was mindful that I was still being given radar vectors, not "own navigation." Next, Departure directed me to turn to 195 and then reported traffic, which I reported not in sight. Departure next directed me to expedite my turn to 195, which my gyro indicated I was already on. Since I have realism set to maximum and gyro drift enabled, I pressed the [D] key to align my gyro with the magnetic compass. There was a large change, and I understood why Departure asked

me to expedite. I also heard Departure reporting my aircraft as traffic, and a King Air AI aircraft reported me in sight. After Departure directed a course of 155, I was back on the planned track to TZZ, and I received a vector of 180.

While on the 180 heading, I was directed to tune Stockton Approach on 123.85. This reminded me that when flying IFR at lower altitudes, you might not be handed off to Center. Instead, you may be handed off to Approach controllers along your route. After a while longer on 180, it became clear that I was not going to get "own navigation" and that ATC was vectoring me south to approach Oakland from the southeast, as shown on the accompanying Map View of my track. Also, since I was at 4000 feet, I wondered if ATC would keep me clear of Mt. Diablo, which is about 4000 feet high. I discovered that FS 2002 is smarter than I thought, though I wondered, "will they ever turn me toward Oakland?" At one point, I was advised of a Learjet at nine o'clock at 400 feet. As I looked in that direction, I saw Livermore Municipal Airport (KLVK), I saw the tag for the AI Learjet, and I was able to report "traffic in sight."

Shortly after seeing KLVK under my left wing, I was turned to a heading of 200 and directed to call Bay Approach on 134.50. I knew at this point that I was still "on Radar" with ATC, and quickly checked in with Bay Approach. Next came a very significant communication from Bay Approach, "Cessna 681, you are 14 miles southeast. Turn right heading 260. Descend and maintain 2000. Cleared for the ILS runway 29 approach. Maintain 2000 until established on the localizer." In Map View, I could see where I was located when I began the Approach phase.

• Approach and Landing

This form of direction is always provided by ATC and it begins the Approach phase of an instrument landing. Since this can be a difficult transmission to comprehend and read back, I like to think of it using the mnemonic P-T-A-C-M, for Position, Turn, Altitude, Clearance, Maintain. The position statement is advisory, so it doesn't need to be read back, but you must read back the directive statements, which can be abbreviated somewhat: "Turn 260, descend 2000, cleared for runway 29 approach, 2000 until established, Cessna 681." Even before hearing the end of the transmission and repeating it back, I turned to 260 and checked that I had the ILS for runway 29 tuned on 108.70. I also clicked the audio panel for NAV 1 to hear the Morse code ID for the ILS, which is IINB.

After I had completed the turn to 260, descended to 200, and got established on the localizer, Bay Approach handed me off to Oakland Tower on 118.3, which directed that I "fly straight in" and I was "cleared to land runway 29." Though it had been hazy, I had a great view of the runway from the virtual cockpit view. After landing, I was directed to call ground, and I was given taxi directions to general aviation parking via taxiways Y, W, V, T, B, and C. This was a great chance to use the progressive taxi feature in FS 2002, though I knew in real life, general aviation aircraft usually land on 27L and 27R at Oakland, so their taxiing would be much shorter.

That completes the exercise, and I'm certain that you have a new appreciation of how realistic the FS 2002 ATC feature is. Using this feature is a quick and highly realistic way to practice for online, or even real flying with ATC. →

More Information

VATSIM's web site: www.vatsim.net / The IAVO web site: www.ivao.org



Wireless 3D GLASSES

From eDimensional

By Phil Paschutine

REVIEW

Two years ago, I remember viewing Microsoft Combat Flight Simulator with 3D glasses. The experience was not a memorable one. There were several limiting factors that killed the use of 3D glasses with flight simulation programs. The hardware itself cost a fortune, and the blinding headache you had after a short use for starters. Add 3D software compatibility issues that resulted in less than expected sensation of depth and you get the general picture.

Since then we have seen new stereo software, new DirectX files, and improvements in hardware. We are now pretty confident that 3D glasses can be used with flight simulation programs.

eDimensional is a company who started business in mid 2000. They aim to supply 3D glasses, head trackers and other hardware such as the baseless joystick to gamers. In this issue we will take a look at the 3D glasses.

The Technology

When everything is configured just right, the 3D experience is simply mindboggling. You are in a pseudo-realistic environment where the brain is tricked into seeing a 3 dimensional perspective of a 2 dimensional view.

Our first stereoscopic experience came from the anaglyph glasses we donned to watch TV or movies, or read books and magazines. Anaglyph? Yes those cardboard or plastic frames with the red and blue (or green) cellophane lenses.

Before the anaglyphs, the stereoscope was the only 3D game in town. The principle of stereoscopy is quite simple. Two identical images in black and white, set left and right, are placed in the stereoscope. Look at them and the brain will combine the two into one, which will be viewed as having a perspective. The anaglyph works almost the same except that the images are colored red and blue then superimposed so they look shifted. When wearing the anaglyph glasses,

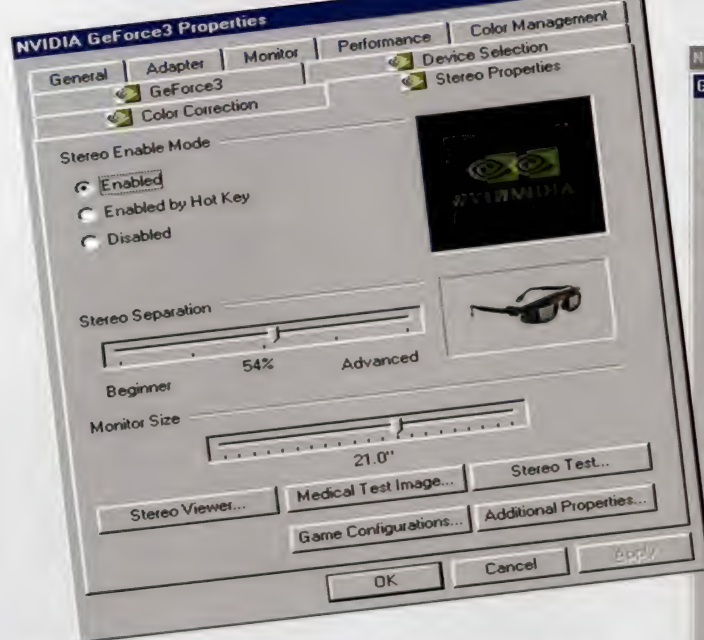
the wearer believes he is part of the image.

With the computer, the video card will display different sets of frames to each eye during the monitor's alternating cycles. To get the 3D effect, the right eye and the left eye must each be shown one set of frames. Polarizing each lens in sequence does this (the lenses blink alternatively). Of course, to achieve normal viewing your video card must be able to display twice as many frames. Your monitor needs to support 100 - 120 HZ. You can do it with a lower resolution but you may experience screen flickers.

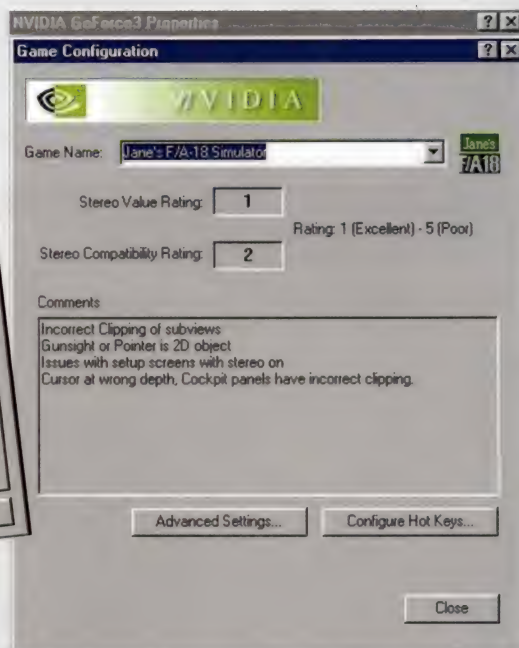
The eDimensional System

eDimensional offers two sets of 3D glasses, the hard-wired ones with a cable between the glasses and the VGA dongle with a wireless set using an Infra Red transmitter. I tested the wireless set.

The way the hardware is packed inside the box makes it virtually impossible for



If you installed the Nvidia drivers and the Stereo drivers, you will be presented with this additional tab in the Display Properties window.



Game configurations

you to break the glasses and the various components during transportation. You have the glasses, the dongle, the wireless transmitter, a power adapter for non VESA compliant VGA ports, and a Quick Start Instruction Guide

There are two CD's, one for installing the Metabyte Wicked 3D software, and the other that contains evaluation copies of several games. Also included are the latest versions of the stereo drivers for windows XP, 98, 2000 and ME. Nvidia card users can update their drivers with the newest Detonator drivers, version 23.11. The CD includes several links to the eDimensional website where the latest stereo drivers can be downloaded. There is also a

troubleshooting guide, and an NVidia Stereo Users Guide in PDF format.

Installation

Thanks to eDimensional's quick responses to my queries, here are the steps to a successful installation of the glasses and the video and stereo drivers. There will be two different installation routines, depending if your VGA port is VESA compliant or not:

1. Non-VESA compliant VGA port.

Connect one end of the power adapter to the keyboard input (and keyboard to PS2 connector on adapter) and to the computer's VGA port. Connect the slim end of the dongle to the power

adapter and the wide end to the monitor cable.

2. VESA compliant VGA port. Just connect the monitor cable to the slim end of the dongle and the wide end to the computer VGA port.

In both cases, and depending on which of the wireless or wired sets you will be using, you should connect either the PS2 or stereo connector to their respective connectors at the wide end of the dongle. Remember to install the wireless transmitter directly in your line of view. On top of the monitor is the preferred place. This step takes about 30 seconds and you can now install the drivers.

Depending on your video card make



Dongle for the wireless eDimensional 3D glasses

System Requirements:

Windows PC 95/98/ME and NOW 2000/XP support available for nVidia chipsets!!
CRT monitor (No laptops or LCD screens)

Monitor:

Minimum 70Hz refresh rate suggested (A refresh rate of higher recommended)

Supports the most popular display adapter chipsets:

3dfx Banshee, 3dfx Voodoo2, 3dfx Voodoo3, 3dfx Voodoo5, ATI Radeon, ATI Rage128 & 128GL, ATI Rage 128 Pro, Intel i740, Intel i752, Intel i810, Matrox Millennium G200 & G400, NVIDIA GeForce 256, NVIDIA GeForce2 GTS, NVIDIA GeForce2 MX, NVIDIA GeForce3, NVIDIA TNT & TNT Vanta, NVIDIA TNT2, TNT2 Ultra, & TNT2 M64, S3 Savage 2000, S3 Savage3D, S3 Savage 4,

More Information

You can find out more about the eDimensional 3D glasses from their web site at:

<http://www.edimensional.com>

Mailing address:

eDimensional, Inc.
747 North Van Dorn St.
Alexandria VA 22304

SRP: \$99.95



The eDimensional wireless 3D glasses

and chipset, things can get tricky. I advise you to go to <http://www.edimensional.com/games.htm> and take a look at the partial games rating list.

The list uses color codes for video cards compatibility with the many games that are listed. We are listing some of the game/video card compatibility charts here.

I first installed the Metabyte Wicked 3D software on two computers, and I experienced a compatibility problem with the TNT II M64 video card. Microsoft Flight Simulator 2000, 2002, Combat Flight Simulator II, and X-Plane are not supported for this card. Also, the Kryo chip based 3D Prophet 4500 64 MB does not work with wicked 3D software. I searched the

eDimensional website to find a solution to this ghastly problem. I downloaded the latest Nvidia drivers and installed the stereo driver on a Pentium IV 1.8 GB system with a GeForce 3 GTS video card, and all worked fine. So pay attention to hardware compatibility before considering purchase.

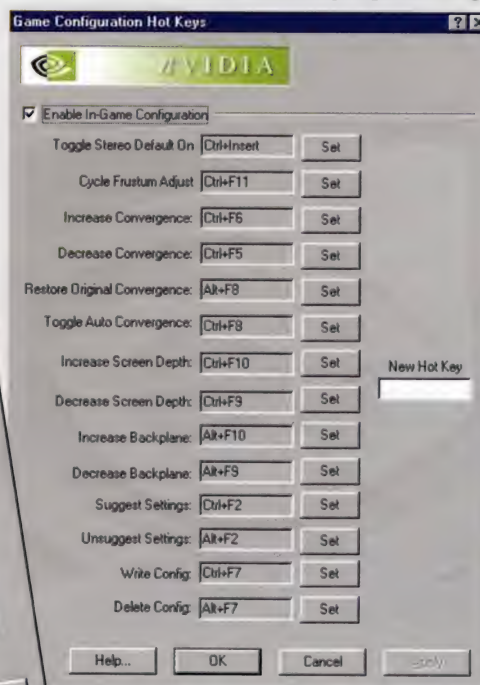
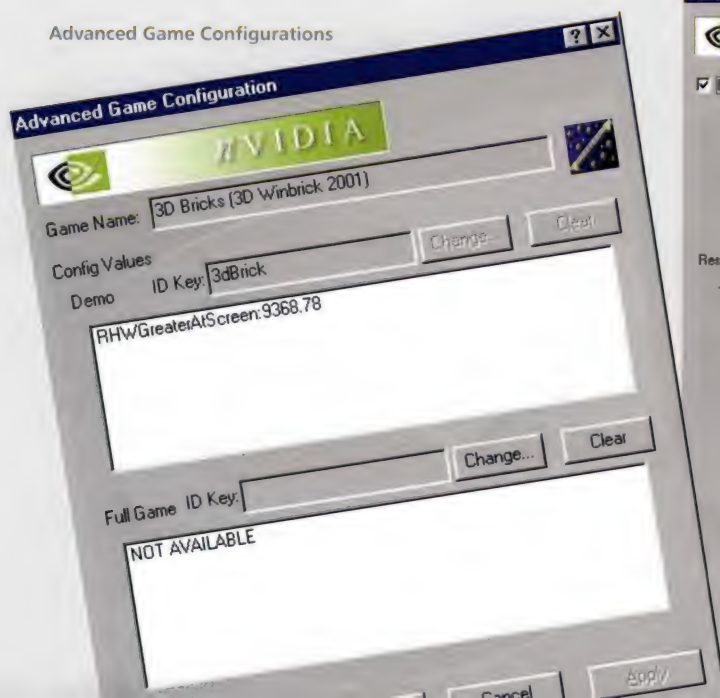
You should by all means install the Metabyte Wicked 3D software supplied. If nothing works, uninstall it and download the latest Nvidia drivers from their web site and install the Stereo drivers from the second CD. Then reboot the computer. Once that is done you should see an additional "Stereovision" tab in the Properties window if you installed the Wicked 3D software, or "Stereo Properties"

if you installed the Nvidia drivers.

If you installed the Wicked 3D software you will be presented with a setup screen after the reboot. You will be shown several calibration screens to calibrate and check that 3D-mode and stereo separation is adequate. You can adjust vertical and horizontal separation, and add more or less stereo separation along with various other modifications. Once you are satisfied with the settings and the 3D test screens, load and play your favorite game.

The first step is to enable the stereo mode and separation. For personal reasons I like to have stereo mode enabled all the time, but you may opt for any of the other

Hotkeys - Including in-game configurations.



Game	Activision	Raven Software	Compatibility
"Star Trek: Voyager, Elite Force"			
3D Coyote			
3D Desert Run		<u>moo</u>	
4x4 Evolution			
American McGee's Alice			
Avoyd		<u>Enki Software Limited</u>	
Axis	<u>Jamie</u>	<u>Jamie</u>	
Combat Flight Simulator			
CounterStrike			
Crime Cities Demo			
Daikatana			
Descent 3			
Deus Ex			
Everglade Rush			
<u>E.A.K.K.2</u>	<u>Gathering of Developers</u>	<u>Ritual Entertainment</u>	
Flight Simulator 2000			
Flight Simulator 2002			

Partial game compatibility list

the experience...wow! Ever seen a flame-thrower shoot flames in 3D? Or a gun firing? As long as you have the right video card and the right game, the eDimensional

Partial game compatibility list

choices. The “stereo separation” is one you will change from game to game. Some will enjoy having it at 20% others at 50% or more. Just remember that your adjustments may not suit another user, and if you share your system with someone else, they will have to adjust the stereo separation to their own liking when using the glasses.

You'll need to adjust the monitor size and run the Medical test image. If you do not see what you are supposed to see then I will say that 3D glasses are not for you. If all is OK you may proceed with the other stereo tests and game and hotkeys configurations.

Define which key you want to use to enable Stereo mode, and if In-game configuration is enabled. The options are numerous, and getting to know all will require a few tests. But I'll wager you can be up and adjusting for each new game that supports 3D in less than a half-hour. You can use the advanced game configuration for many games, and then just load and play.

Chances are that once you have the correct stereo separation, you will not need to

change any other settings. But if you like to fine tweak then you can do so. Need I stress the fact that you should read the manual?

The glasses fit without any problems over prescription glasses and vision is not impaired. The glasses are activated when you open the temples or by using the E-D button

The 3D Glasses In Action

The eDimensional glasses were tested with X-Plane and Flight simulator 2000/2002

In X-Plane, the outside views were simply stunning and the overall depth sensation was good. My first flight in FS2002 was extraordinary! The sensation of depth is really nicely achieved. The frame rates did drop quite a bit, but I did not see any degradation in fluidity of the simulator. The virtual cockpits are truly nice. The 2D (standard) cockpit view, however, does not benefit from any 3D effect. Only the virtual cockpits and outside views do. You may need to turn off Stereo mode when accessing the menus.

Apart from the above-mentioned flight simulators, I have also tested the eDimensional glasses in *Serious Sam II* and *Half-Life*. I'm still recuperating from

the experience...wow! Ever seen a flamethrower shoot flames in 3D? Or a gun firing? As long as you have the right video card and the right game, the eDimensional glasses will work without any problems. There are some visual issues, and they are color coded on the eDimensional website games list.

I am very happy to report that I have not experienced any eye fatigue, or any other discomfort such as dizziness. The glasses themselves are lightweight, made of quality plastic, and have a rubber nosepiece for added comfort. They also fit well over prescription lenses. But unfortunately, 3D eyewear will not work with laptops.

Because we only had one pair of glasses we were not able to test this feature, but since the system's transmitter accepts an unlimited number of glasses, you can potentially use as many sets as you like.

Conclusion

I'm one hard-to-please reviewer, but will admit that the eDimensional 3D experience was a breathtaking one. Flight simulators and games that take advantage of stereoscopic enhancements are to be rediscovered, as you've seen nothing until you are in a stereoscopic environment. At \$99.95, the price is certainly no longer a problem, so get yourself a pair today! →



ATI Radeon 8500

By Rod White

REVIEW

There is no question that Nvidia has pretty much dominated the video card market for the past few years now, just as the now defunct 3DFx did in the early days of 3D-accelerator technology. It can't be denied that Nvidia continues to put out some truly fantastic products. The demise of 3DFx and its assimilation by Nvidia has also helped them a little as well.

The only true competition for Nvidia since that time has been ATI. The debut of the Radeon helped to put ATI on the map once and for all, albeit a little late in the game, with a strong 3D-accelerator chipset. The Radeon cards are not plagued with the problems of past ATI offerings, like the various incarnations of the Rage series. However, driver support has been the one area where ATI has always taken a beating,

from the gaming press and from their customers, because Nvidia has always been first-rate about releasing driver revisions. A lot more frequently than ATI has.

So when we heard that the new Radeon 7500 was basically a beefed up version of the almost two year-old Radeon core, we were a little skeptical of what it could really do. But we were surprised at how well the Radeon 7500 performed when we took a look at it in use just a few issues ago. Therefore, there was great anticipation to see the current flagship product from ATI first-hand. Now, finally, we are glad to report that the Radeon 8500 is finally in the house!

Tech-Talk

This is a whole new beast, and from the ground up this time. Where the 7500 was just a souped up version of the

original Radeon DDR, the Radeon 8500 is a fully DirectX 8.1+ compliant card. It is specifically made to take advantage of DirectX 8 titles, and to be a direct competitor with Nvidia's GeForce 3 and GeForce 3 Ti-500-based offerings.

Boasting a 275 MHz core, and with 275 MHz memory clock speed (effectively 550MHz DDR speed), and 64MB of DDR (Double Data Rate) 3.6 ns memory, it already sounds like a pretty worthy competitor. To put this into perspective, the GeForce 3 Ti-500 clocks in at 240 MHz core and 250 MHz memory speed (effectively 500MHz DDR speed).

Lots of trademark stuff here. HYPER Z™ II is ATI's next-generation memory bandwidth saving technology, which claims to boost rendering performance by 25 percent. It offers 8800 MB/s (megabytes per second)

of peak bandwidth, where the Ti-500 GF3 tops off at 8000 MB/s. PIXEL TAPESTRY II is the Radeon 8500's 3D rendering engine, which is said to use four rendering pipelines to process an incredible 2 gigatexels per second, for the highest fill rates in 32-bit color at high resolutions. Since the GeForce 4 is right around the corner, I don't know how long they can lay claim to being king of the hill, but they certainly are for now.

The CHARISMA ENGINE II is also a new version of their previous rendering engine. It supports full transform, clipping and lighting (T&L) at over 60 million triangles/

programmable vertex and pixel shaders, DDR memory, and anti-aliasing. It has capabilities found under the hood of a GeForce 3/GF3 Ti-500, and then some.

Actually, the Radeon 8500 is technically more advanced than a GeForce 3 based solution, and for a great deal less money on average. But there are some things that separate the two, one being Nvidia's outstanding driver support track record, something that ATI is just now starting to improve upon. The Radeon 8500 originally shipped without SmoothVision anti-aliasing support working, due to very immature

turning one triangle into many smaller triangles, creating a more curved surface, and of course, upping the polygon count. This makes 3D objects look more lifelike and realistic. Best of all, both old and new titles can benefit from TruForm!

The software provided allows for user controllable shortcut keys and individual application settings. Not to mention that the card has two separate RAMDACs for each display! VIDEO IMMERSION II is ATI's second-generation technology that enables integration of industry-leading digital video features, including DVD video playback and



second peak processing capability. In addition, let's not forget about HydraVision. Here's a feature that allows for multi-monitor desktop management, and the means you can display two CRT monitors, a CRT monitor and an LCD monitor, or a CRT and TV out, all at the same time.

Much of this sounds like fancy marketing hype and techno babble, and of course, it is to a degree. But what it boils down to in layman's terms is that the Radeon 8500 features all of the leading technology capabilities, like hardware T&L,

drivers. However, recent drivers have since addressed this. So they're coming around.

ATI calls their vertex and pixel shaders "SmartShader", because in a sense they are smarter than Nvidia's. SmartShader offers 22 instructions per program for graphics developers to take advantage of, instead of the 12 Nvidia offers. Another feature worthy of mention is TruForm. It is by far one of the most advanced features available today, and is exclusive to the Radeon 8500. With TruForm, seemingly flat surfaces (triangles) can be made curvaceous by

advanced de-interlacing algorithms, for truly unprecedented video quality. That's no lie either, as the DVD playback quality is unmatched by anything else on the market today, while also maintaining very low CPU utilization! This is truly the best card on the market for DVD playback, bar none.

Where The Rubber Meets The Road

We've been putting the Radeon 8500 through a workout with various flight/ combat simulations and popular PC games.



Radeon 8500 without Smoothvision



Radeon 8500 with Smoothvision



FS 2002 image without Smoothvision

We are very impressed by what we've seen. Titles like Microsoft Flight Simulator 2002 look breathtaking, with and without Smoothvision enabled. And with it, everything is amazingly crisp looking at all anti-aliasing settings. Other titles like IL2: Sturmovik with the Open GL settings tweaked look amazing and fly like a dream on the Radeon 8500. Almost anything we could throw at it looked and performed great. Comanche 4 is another title that takes advantage of all of the cool whiz-bang features of the Radeon 8500, and man, did

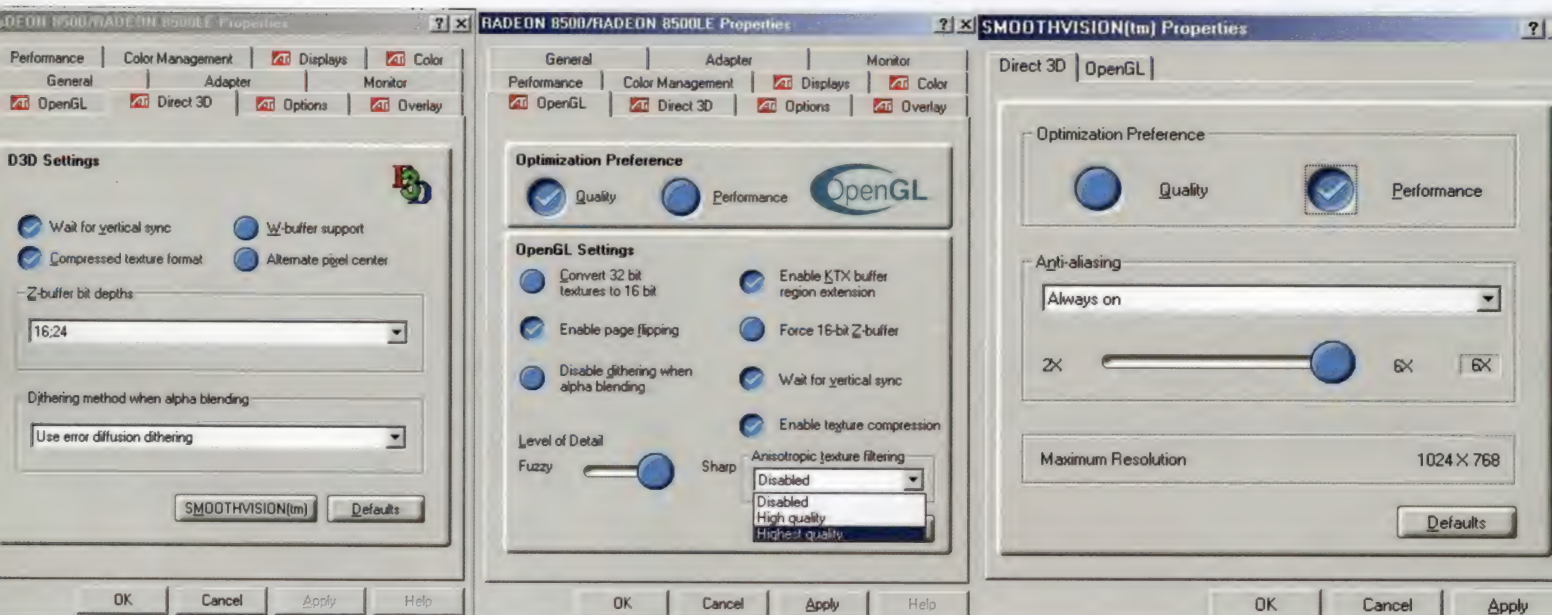
Conclusion

ATI has come a long way. They have always been a manufacturer of topnotch video cards, but in the gaming realm they weren't taken seriously until the debut of the first-generation Radeon. The Radeon 8500 has now skyrocketed them well beyond being just second fiddle. Being the No. 1 competitor for Nvidia is definitely a good thing, more so when the company has a product as feature rich as the Radeon 8500, and at this level of performance.

I won't sugar coat things either, because

running with two monitors adds a lot more to the overall experience and realism factor, which really counts for something. I also feel that the image quality on the Radeon 8500 is more vibrant over a Ti-500 or vanilla GeForce 3-based solution.

The Radeon 8500 is by far the most impressive product that ATI has created yet, and is well worth pursuing for running current and future games and flight/combat simulations. Not only does it have features that can and will be taken advantage of by future titles, but also it



The software provided allows for user controllable shortcut keys and individual application settings

it look and play great on this card!

Actually, more than just a handful of titles looked better than they did on a GeForce 3-based card. The image quality is really unmatched on the Radeon 8500. A few TruForm-enhanced games were also tossed in as a freebie with the card, like Counter Strike, Team Fortress Classic and Half-Life: Uplink. Sure they're all a little long in the tooth titles, but the fact remains that Counter Strike is still one of the most played games on the Internet today, and it never looked better running on this card.

I've seen a few comparisons where the Radeon 8500 isn't as impressive a performer as a GeForce 3 Ti-500. But in almost every instance it was in some older gaming titles, or at one resolution. The bottom line is that a few frames per second more or less than the competition don't tell the whole story. You honestly can't get a better card for DVD playback, period!

The ability to run two monitors, and mix or match is another draw for some, a feature mind you that the competition hasn't been able to touch. In FS 2002,

has enough raw horsepower to handle running almost anything you can throw at it from today's vast library of games and simulations. And it looks damn good while doing it too.

Until I see what the GeForce 4 has to offer first-hand, my vote goes to the Radeon 8500 for being the most feature rich and powerful video card that money can buy right now. At press time an ATI Radeon 8500 card runs about \$200, and I've recently seen deals at Best Buy that offer a \$50 mail-in rebate! →

More

Information

You can find more information On the Radeon 8550 on the ATI web site at: <http://www.ati.com>



Schiratti Control Center

For Microsoft Flight Simulator and Combat Flight Simulator

By Phil Paschutine

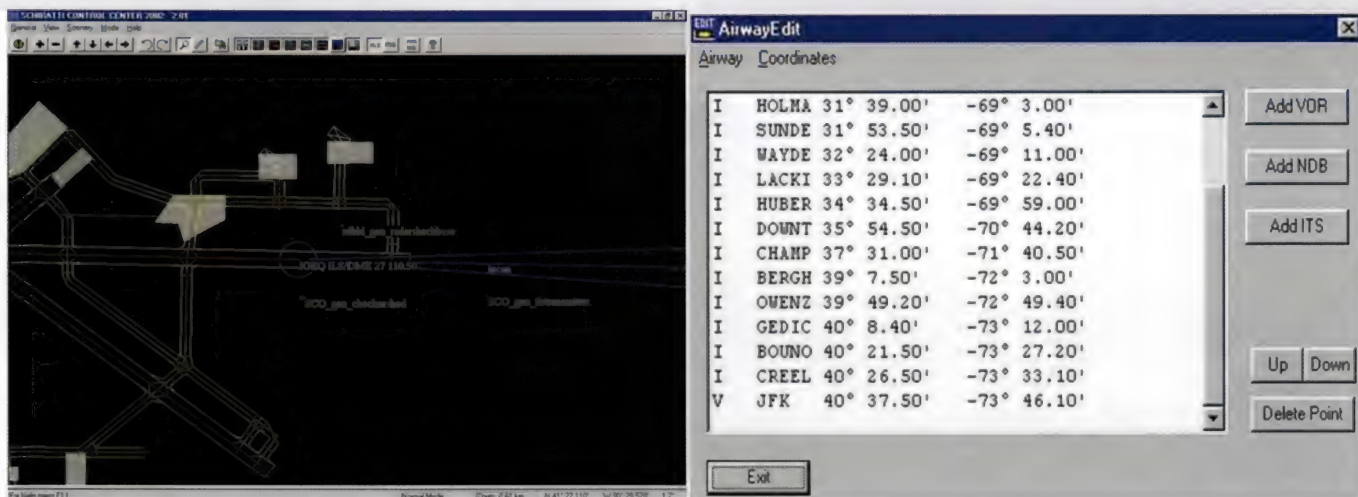
Many flight sim enthusiasts and scenery designers will remember Schiratti Commander, from way back in FS 5 days. Schiratti Control Center (SCC) is basically Schiratti Commander Gold, totally revamped for design compatibility with more recent versions of the simulator. And after a year of beta testing, I can tell you that it is one gem of a program.

The author, Gerhard Kreuels, calls it a "Swiss Army Knife", because of the many options it carries. It can read scenery data, allow you to create flight plans, and load the flight plans into an ATC environment capable of tracking flights from any computer. Last but not the least, it is a full scenery designer, and has "avant-garde" features not found in other scenery design programs until recently.

Installation and Documentation

You can download the 4 MB zip archive and extract the setup files to a temporary folder, or you can order it on CD. The setup procedure is automated, so all that is required from the user is to input the version and serial number sent to you (if you purchased via download). When setup initializes it will ask you to choose which files you wish to install. In case the installation program does not find the path to the simulator(s) it will ask you. The DLL files copied to the simulator's Modules folder enable direct communication and data transfer between SCC and Flight Simulator or Combat Flight Simulator.

The documentation consists of several help files, accessible individually from the program's root folder on your hard drive, or from within the program itself via the menus.



Schiratti Control Center's GUI/map interface

Airway editor

More Information

Author: Gerhard Kreuels

Author web site:

<http://www.hspgmbh.de/scc.html>

Online purchase:

<http://simmarket.com/online/scc>

SRP: 35 € - about \$33.00 US

No Internet connection?

Postal address:

The simflight Network, Customer Dept.

Po box 421310

D-55079 Mainz

GERMANY

You can download Coastline data

from the USGS website at:

<http://crusty.er.usgs.gov/coast/getcoast.html>

Several Operating Modes

Before using the program, you need to build the scenery database and library index.

SCC has a multiple scenery selector to build the scenery database. You can also create a library index of the objects found in the simulator's Scenedb folder. It creates a file with paths to specific files having Flight Simulator library objects.

Once you have selected one or more scenery folders and created the scenery database, everything will be displayed in the main view window. The level of detail will depend upon your Preferences and View settings. If your scenery database has many airports you can always do a string search for a specific airport or navaid, or you can go to the BGL selector and select which file(s) you want to load into memory. Once this is done you are pretty much ready to use one of several SCC modes.

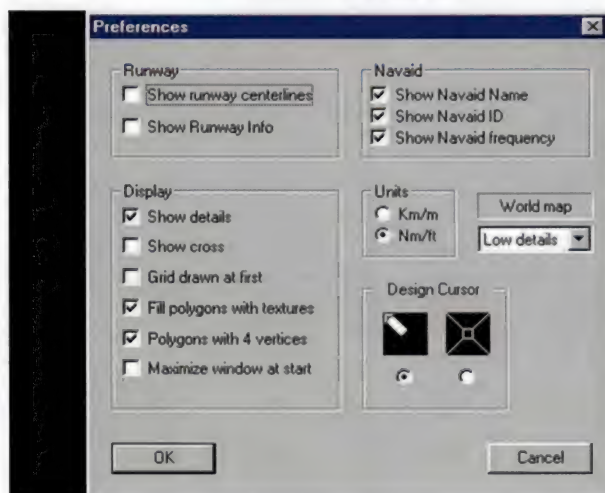
Radar

This mode allows the user to track one or more aircraft, and depending on the Flight Simulator version, act on the aircraft systems and weather areas. If you want the Radar mode to function properly on more than one computer, you must read the help file. It's not all that straight forward, so follow the instructions to the letter.

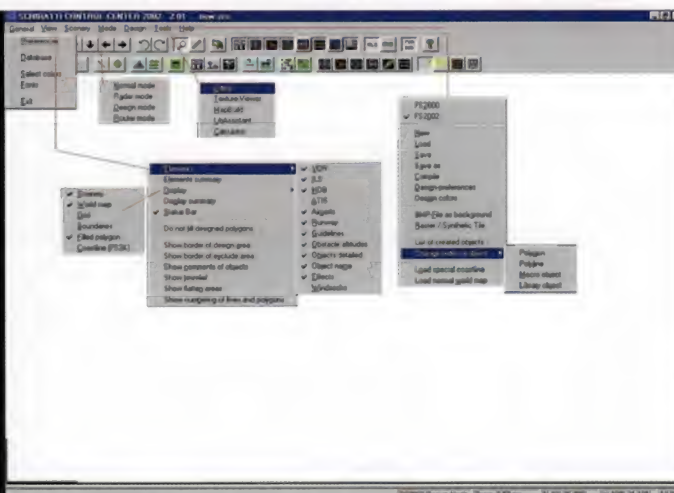
You can connect via an ISP or over a LAN, and track flights from one computer to another. The Radar mode allows you to track any flights, and depending on your version of Flight Simulator, you can change weather and modify one or more aircraft functions. The Radar screen can simultaneously display one or several flights, and the flight data is quite simple to understand. Of course, you can load scenery files to have a VFR GPS, or moving map with VFR data follow the aircraft.

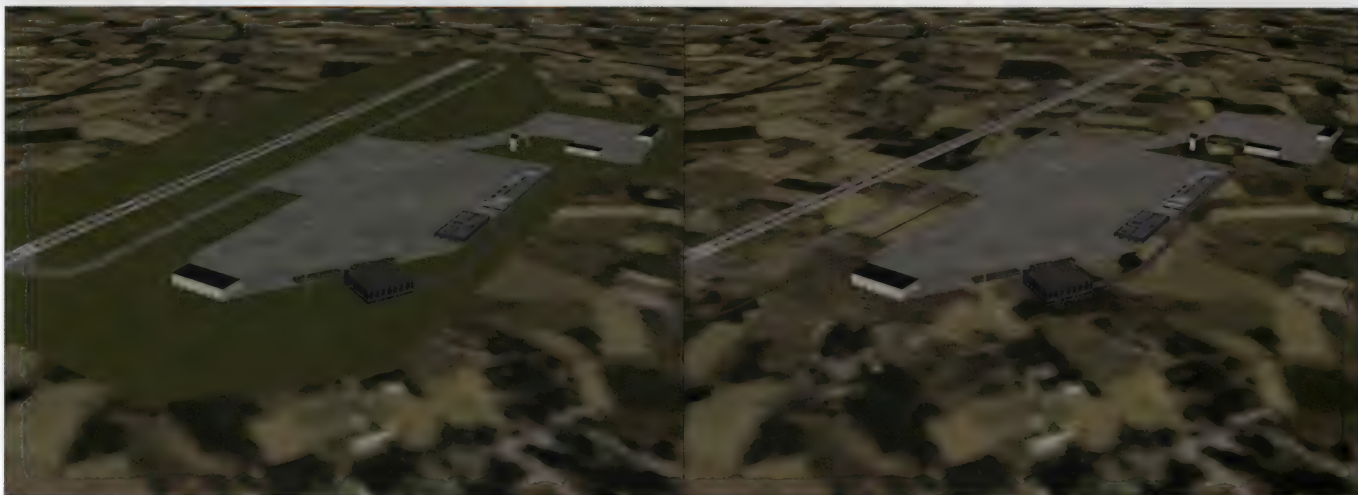
The program allows you to assign a flight

The Preferences dialog box



Menus appear on a white background with no map loaded





Aerial view of an airport with flattening as a textured airport overlay

Aerial view of an airport with flattening as an invisible overlay

level, and define minimum and maximum flight levels in FS 2002. If aircraft are outside of the assigned flight levels, they will not show. If you have several flights to track you can attribute a color to each for easier recognition. You can center any flights on the Radar screen by using the drop down list. The flight track of each aircraft can be saved and replayed later on.

Router

This mode allows you to create and edit a flight route. The flight plans can be built with airways as an overlay. The airways can be edited or created based on real life navaid or Intersection data. Coordinates can be displayed in either decimal or Jeppesen style. You can select any navaid/airport along the airway and create new intersections and GPS fixes.

Once the flight plan is built you can hide the airway data and keep only the

flight plan information. The bottom half of the screen shows your current flight plan choices. The only action you can perform in the lower half of the screen is to assign a new altitude to the current waypoint, or all the succeeding waypoints. Once your flight plan is established, you can see how long the flight will take on the additional route information screen. The flight plan can then be saved in SCC format and recalled later in Radar mode, or in text format for printing.

Design

Before we get on with the description of what SCC can do, here is a brief rundown of the tools that come with the scenery designer:

- Texture viewer, which can display the Extended Bmp format Microsoft uses.
- Editor to edit the SCASM compiler source files
- Calculator to perform distance/

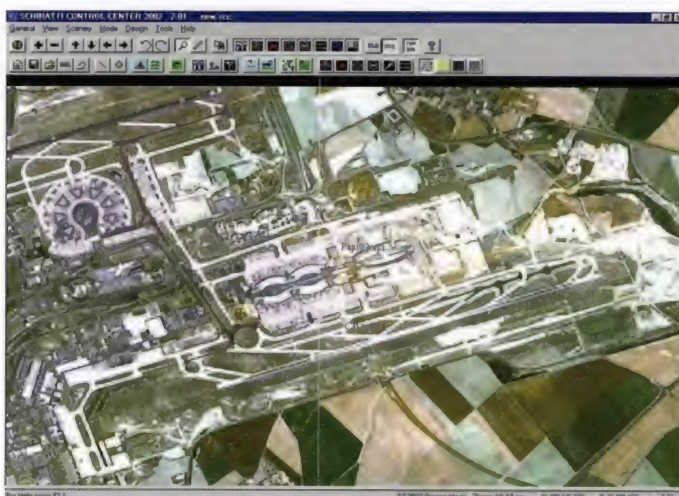
measurement conversions

- Map Builder
- Library assistant.

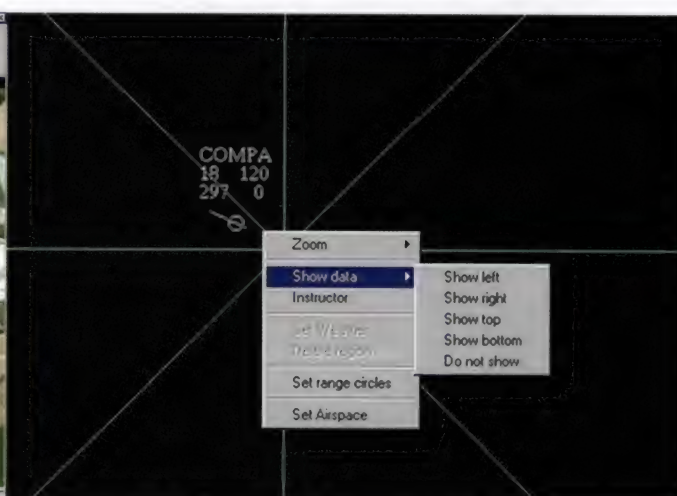
The Scenery Design Tools

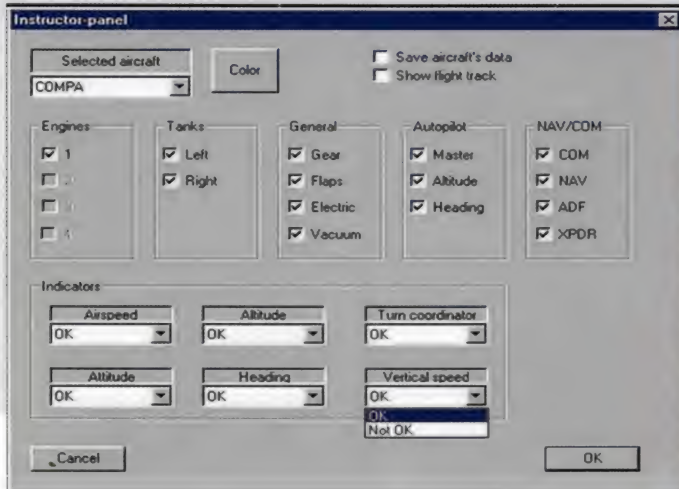
The Map builder allows you to build your own area based on data downloaded from the US Geological Survey (USGS). If you have been using Airport & Scenery Designer (ASD) from Abacus, you are no doubt familiar with the USGS site and the map conversion process. The data that can be obtained is the World Vector shoreline data, at a scale of 1:250 000, and is downloadable in *.dat format. Load the data file into the map builder and SCC will convert it automatically into a map file, and copy it to the DesignMap folder. If you wish to load an individual part of the world only, you can do so from the design menu option. You can always return to the default world coastline.

Using a bitmap a background template

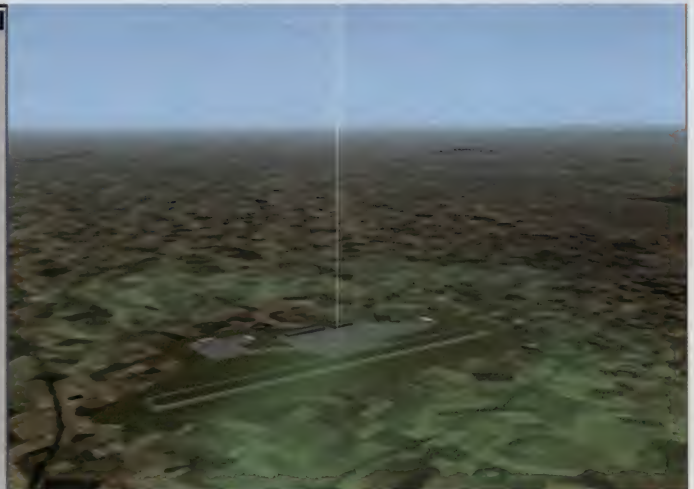


Radar data information location





Instructor dialog box



Special effects - light beams and fireworks

The runways you create can be dirt, concrete, asphalt, grass, coral, gravel, oil streaked, steel mats, and snow. Additional options include enhanced runway markings. The only thing missing is the ability to stretch and rotate the view window with the mouse like you can do with ASD. If you come from using ASD you may find this a bit of a nuisance. Mouse rotation and stretching of your work surface sure is handy.

There are two ways of defining a flatten area in Flight Simulator, either by declaring flatten parameters in the Scenery.cfg file, or by creating a flatten .bgl scenery file. The first method allows only ten flatten statements per area, so you are quite limited. With SCC you can create flatten areas via the scenery files, which is a much better way to go. You do not need to create a textured airport polygon to create a flatten area, as you do in ASD. So you can keep the FS2002 default airport polygon if it blends in well.

Like all present scenery design programs, at least for the time being, SCC is unable to read the Flight simulator 2002 default textures and the decal like roads and river data. This is now actually built into the FS terrain database. Don't get SCC, or any other design program for that matter, if you are thinking you will be able to modify the default terrain. This cannot be done at the present time, as the secret to this part of the scenery stays with Microsoft.

With SCC you can design almost any type of lines on the ground, including CAT II, CAT III, and general taxiway and holding lines. Lines can be single, double, dotted or straight lines, and support night illuminated dots. Depending on the direction you draw the line, the dotted edge will be facing one side or the other. Perfect for showing the taxiway centerlines at night.

Joining taxiways is another royal pain in the backside when designing scenery. Even now some commercial titles still have badly jointed lines. SCC solves this unsightly problem, and joins taxiways quite well. The screen zoom factor is high enough to allow you to join one or several lines, and can be done in a matter of seconds. This allows you to create highly intricate taxiway guideline patterns.

Gerhard Kreuels must have been quite a visionary, because his polygons were the first to include light dots at the edges that could be disabled between two points. For example, if you do not want light dots at the taxiway apron junction, you can disable them easily. The polygon tool has a bitmap selector with several user-defined texture directories. If you need to modify a texture for FS 2002 you can do so using Imagetool found in the FS2002\gmax\gamepack\flightsim folder. Polygons can be filled or not depending on the design operation, and that comes in handy when working with lines or overlays. Polygon surfaces can be defined as rough, smooth or water.

Mesh terrain data (elevation data) is not automatically generated, but you can create an area based on a grid with up to 32 edges of variable length. Each grid can be assigned a single texture, with or without seasonal variations. Each individual elevation points, or all points collectively can be assigned an altitude.

The library assistant enables you to load and store predefined Flight Simulator default objects into an SCC-compatible library file. The objects are then inserted into the scenery and called from the default Flight Simulator library at runtime.

You can insert a library object and even attribute an effect to it. Fireworks at ground zero are pretty awesome. Light posts are not yet compatible, because the ground polygon representing the lighting effect flashes in FS2002, so this still needs some work. If inserting FS default objects is not your thing, then inserting your own (or other's) macro objects into the scenery is easy as 1-2-3.

Another fine feature many have been wanting for some time is the ability to display background bitmaps on the GUI, for use as a design template. As is the case with other design programs, the scaling of the bitmap takes some doing. But this background template comes in handy when you want to do accurate work.

In the miscellaneous cool features category; you can call the list of created objects and add comments or jump to that object. You can also change the order of compilation of the polygons, polylines, macro, and library objects. You can also create thermal areas, and indulge in a bit of soaring as well.

Conclusion

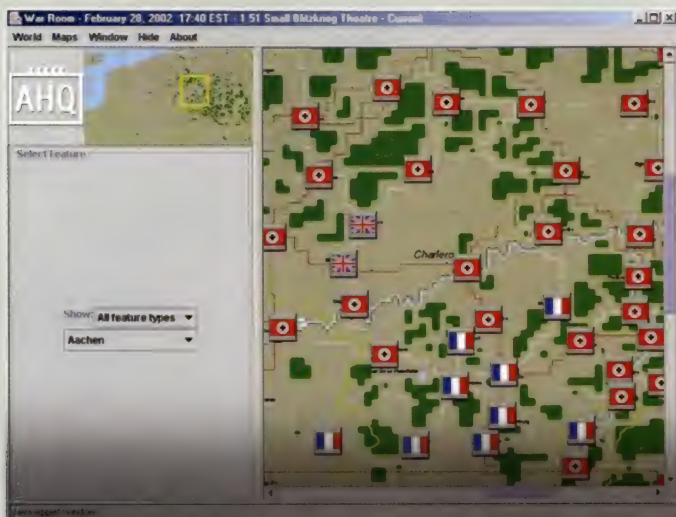
Schiratti Control Center is an excellent program. Apart from its in-flight features, the design module alone justifies its purchase. SCC can be used either as a standalone, or conjointly with other design programs. Scenery designers will find it invaluable because of several enhanced design features not found elsewhere. Newbies will adapt quite quickly to this new graphical interface. Last but not least, SCC will prove to be an invaluable companion to ASD, FSDS, or Rafael Sanchez's NOVA2000 scenery and object designer. →



WW II ONLINE revisited

By Rod White

When we first reviewed **WW II Online** from Cornered Rat Software, the jury was still out on where it would eventually go. But the future looked very bright. After all, it's a very ambitious undertaking, since it's the only title that tries to create the entire virtual battlefield that took place in **WW II**. That alone leaves the door open to model hundreds of different planes, armored vehicles and scenarios. Did you know that on most any given weekday you could find **1000-3000 people playing it online**, and about **3,000-7000 on weekends**? That's how much it has grown since it was released in June of 2001.



The on-line War Room.



Load out for the BF110



Taking part as an onboard ship gunner



Visual model of one of the naval vessels.



Attacking a ground target as a Brit



Cockpit detail



German fighter



Briefing screen



A view of the terrain modeling

Functionality

WW II Online debuted with the Blitzkrieg scenario, but plans are still in place to commence with the invasion of France in 1940. Later scenarios will take place in the Asian/Pacific Theater, with either the Russian or African Theaters to follow. By the time it's all said and done there will be about 10 arenas available, with 1,000 players per arena. That's a whopping 10,000 players at once!

When it was initially released, a lot of things were not yet in place. But some of the supply system is finally starting to show up. Spawn limits are now in place, which will limit a town from spawning more tanks than it has the supplies to support, for example. Once it has been re-supplied it can continue spawning armor, but not before. This makes things a little more realistic. After all, how much fun is it to take on a town where tanks and troops just keep automatically popping up again as soon as they are destroyed? So progress has been made in that respect. The User Interface (UI) has also been updated a bit, and looks a great deal better than it did at launch.

In The Cockpit

More planes have been added too. Wahoo! At long last there's bombers to fly! And they can be flown or manned by up to three players at once. The introduction of the Blenheim bomber for the Allies, and BF110 bomber for the Axis definitely shakes things up a bit. Now true terror can reign down from the sky! Both offer pilot, bomber and tail gunner positions, and with three people onboard it's a wild ride, and a pretty thrilling experience. Personally, I think I like being the gunner best, as I'm more of a fighter pilot than I am a bomber pilot.

Make no mistake about it; this is a hardcore flight simulation when it comes time to climb in the cockpit to take flight. Since the initial release a great deal of tweaking has went into the flight models of each plane. There's no more jumping in the cockpit and being in the air within seconds now. Actually, it frustrated me to no end until I realized that the reason I spun uncontrollably whenever I tried taking off was because I did not take the time to lock my tailwheel in place before giving her enough power to leave the hangar! How's that for realism? I thought my rudder control was out of whack, lost calibration,

or something, until I typed to another player "just what am I doing wrong here?" and he replied "hit the "/" key to lock your tail-wheel in place".

And that's another thing that makes flying in WW II Online a treat. While any massively multiplayer game has its share of those who only want to help themselves, there's still a great number of guys online in WW II Online that are always there to lend a hand.

On The Ground

Naval ships are also starting to appear now. And for the average grunt, they've added more weapons like satchel charges and grenades, so they at least have a chance for survival against some of the vehicles in the game. On the ships you can man a variety of different stations from smaller machine guns to AAA, and fairly large deck mounted cannons. Pelting armor from the water is a great deal of fun now, especially with a bunch of other guys on board all at once.

A lot has changed in the way of terrain too, and not just visually. There is more terrain to help conceal tanks and foot soldiers, giving them a far better chance for survival. The addition of more terrain adds tactical cover overall, due to the addition of a lot more trees and brush down below. And the view from the cockpit from up above is more enjoyable, because the countryside doesn't look as flat as before.

On-Line Resources

A wide variety of resources are also online now at WWIIOnline.com, and that also makes the experience a great deal more immersive. Players have even gone as far as creating an online command structure called the GHC (German High Command). And you can even enlist there too! The Allies have their own part of the site. The War Room, which is a really neat Java applet, shows you an updated situation report based on the in-game map, in semi-real-time (it updates every few minutes). So even before taking flight you can see where you are needed, and where your efforts could be most effective against the tyranny being dispensed by the Nazi Blitzkrieg across Europe.

Conclusion

Overall I'm very impressed by the progress that has been made with WW II Online since I last visited it in early autumn of 2001. The developers themselves have said it will most likely never really be "done", since it is a continually evolving product.

One thing that plagued it early on was the lack of stability, and I'm glad to report that I've been able to participate for hours on end without any issues in that respect. Granted it still demands a pretty powerful system. Even with a GeForce 3 Ti-500 video card with 64 MB of memory, powered by an Athlon XP 2000+, the frame rates don't usually hit higher than 40fps within the cockpit. This is very acceptable, but things start to plummet a bit when the action gets hot and heavy. Manning tanks and the other support vehicles, or taking part as a foot soldier is much less demanding on your system compared to flying in WW II Online. Performance is usually very good under these circumstances.

Graphically speaking, although the terrain looks nicer, not a lot has changed yet. Right now the priority for Cornered Rat is adding more vehicles, planes, ships and more fleshing out of the role playing system. Once they've addressed the more important aspects of the simulator they'll work more on the eye candy.

WW II Online promised a lot more than it could ever deliver out of the box, and that still rings true today. But what's in place now makes it twice the title it was when it was first released. As it stands now, with the version .154 update in place, WW II Online is stable, immersive and is the closest thing you can find to a full-blown virtual battlefield experience anywhere online.

If they keep up with the improvements and building upon what's there now, at their current pace they may eventually be able to offer a product that's all that it promised to be. They are still offering a free 30-day trial for purchasers of the full retail product. And if you go online, they offer a downloadable version to try free for 14-days as well. . They are definitely on the right track, and what's in place now is definitely worth the \$9.99 a month. →

More Information:

You can find out more on the WW II Online web site at: <http://www.wwIIonline.com>



Fighter Ace III

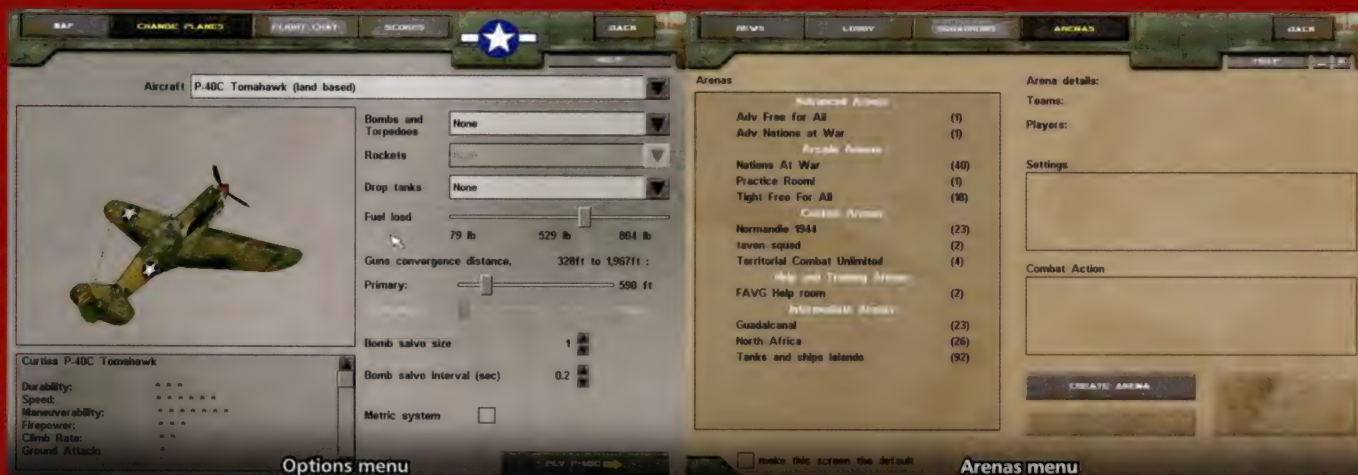
By Rod White

REVIEW

Fighter Ace has been available online and entertaining virtual pilots since 1997. If memory serves me correctly, it was one of the first titles to debut online with the MSN Gaming Zone launch (which was called the Microsoft Internet Gaming Zone back then). Fighter Ace 2.5 is still exclusively a Premium MSN Gaming Zone title for now, but more recently VR1 launched Fighter Ace III; the first Fighter Ace title that will not be found at the Zone.

This time out they will be hosting the game on their own. This is a pretty bold move, since the MSN Gaming Zone is still one of the most recognized places on the Internet for multiplayer flying. But VR1 has been in the business of MMP (Massively Multiplayer Technology) since 1993, so if anyone knows multiplayer for the masses it's them.

As it stands Fighter Ace 2.5 remains a Premium game on the Zone, but not for long. VR1 will soon pull the plug on it, and version III will be the only Fighter Ace game in town.



Here's a list of all the aircraft you will find in Fighter Ace III, complete with tips and extra info on most of them from VR1's Fighter Ace III game designer, Doug Johnson...

Great Britain Fighters

- Hawker Hurricane Mk.Ia (Battle of Britain version)
- Hawker Hurricane Mk.IIc (4x 20mm)
- Supermarine Spitfire Mk.Ia (Battle of Britain version)
- Supermarine Seafire Mk.III (carrier based version of Spit MkV)
- Supermarine Spitfire F Mk.Vb (tropical version with big chin filter)
- Supermarine Spitfire LF Mk.Vb (2x 20mm, 4x .303)
- Supermarine Spitfire F Mk.IXc (4x 20mm)
- Supermarine Spitfire LF Mk.IXe (2x 20mm, 2x .50 cal)
- Supermarine Spitfire F Mk.XIVe (hottest Spit in game)
- Hawker Typhoon Mk.Ib (fast mid-war plane with 4x 20mm)
- Hawker Tempest Mk.V (improved Typhoon, even faster, probably best Jet killer, 4x 20mm)

Great Britain Bombers

- Douglas DB-7B Boston Mk.III (light attack bomber, no bomb sight)
- Avro Lancaster Mk.Ib (heavy bomber, can carry 48x 250 lb bombs)
- de Havilland DH 98 Mosquito B Mk.IV (early bomber version)
- de Havilland Mosquito DH98 B Mk.IX (late bomber version)
- de Havilland DH98 Mosquito FB Mk.XVIII "Tse-Tse" (fighter bomber with 57mm cannon in nose)
- De Havilland Mosquito DH98 FB Mk.VI (fighter bomber version)

German Fighters

- Messerschmitt Bf-109E-4/B "Emil" (Battle of Britain version)
- Messerschmitt Bf-109F-4/B "Franz" (best pure dogfighting version)
- Messerschmitt Bf-109G-6/R2 "Gustav" (clean fighter, can carry rocket tubes)
- Messerschmitt Bf-109G-6/R6 "Gustav" (2x 20mm in underwing pods)
- Messerschmitt Bf-109K-4 "Kurfurst" (nothing climbs like a K!)
- Focke-Wulf Ta 152H-1 (thin wing, high alt version of 190D)
- Focke-Wulf FW-190A-4/U3 "Wurger" (best pure dogfighting version)
- Focke-Wulf FW-190A-8/R2 "Wurger" (has big 30mm in underwing pods, best buff killer)

- Focke-Wulf FW-190A-8/R3 "Wurger" (has smaller 30mm in wings, same 30mm as in 262)
- Focke-Wulf FW-190A-8/R6 "Wurger" (standard version w 4x 20mm in wings, can carry rocket tubes)
- Focke-Wulf FW-190D-9 "Dora" ("long nose" version of FW with inline engine instead of radial)
- Messerschmitt Me-262A-1b "Schwalbe"

German Bombers

- Dornier Do-217E-2 (heavy bomber, can carry up to 8x 1000 lb)
- Dornier Do-217J-1 (night-fighter/fighter-bomber version, half bomb load with 4x 20mm in nose)
- Junkers Ju-87D-3 "Stuka" (dive bomber version)
- Junkers Ju-87G-2 "Stuka" (tank killer with 37mm cannon under wings)
- Junkers Ju-88A-4 (medium bomber)

Japanese Fighters

- Mitsubishi A6M2 Zero (famous zero from early war)
- Mitsubishi A6M5a Zero (improved Zero, can carry rockets)
- Mitsubishi J2M3 Jack (good fast mid war plane, 4x 20mm)
- Kawasaki Ki-100-I-Ko Tony (improved Tony with radial engine)
- Nakajima Ki-43-IIa Oscar (early war plane, 2x .50 is weak)
- Kawasaki Ki-61-I-KaIc Hien (Swallow) "Tony" (almost identical to a 109E)
- Nakajima Ki-84-1a Hayate (Gale) "Frank" (2x 20mm, 2x 30mm, good fighter)
- Nakajima Ki-84-1c Hayate (Gale) "Frank" (heavy buff killer w 4x 30mm)
- Kawanishi N1K2-J Shiden-Kai "George" (has automatic flaps)

Japanese Bombers

- Nakajima B5N2 Kate (torpedo/level bomber with bombsight)
- Aichi D3A1 Val (dive bomber)
- Mitsubishi G4M2 Betty (level bomber, can carry torpedo, 20mm defensive guns)
- Mitsubishi Ki-67 Hiryu (Flying Dragon) "Peggy" (medium bomber)

Soviet Union Fighters

- Bell P-39Q Airacobra (improved airacobra)
- Hawker Hurricane Mk.IIb (modified by Soviets to use 20mm cannon)
- Polikarpov I-16/24 Ishak (Little Donkey) (later variant of plane that served in Spanish Civil War)
- Lavochkin La-5FN (good mid-war plane)
- Lavochkin La-7 (hottest SU plane)
- Lavochkin LaGG-3 (early war plane, fragile)
- Curtiss P-40E-1a Kittyhawk (same as US version)

- Yakovlev Yak-1b (very fragile, early war)
- Yakovlev Yak-3 (great dogfighter)
- Yakovlev Yak-9U (best Yak, good dogfighter)

Soviet Union Bombers

- Douglas A-20G Boston (same as US A-20G)
- Ilyushin IL-10 Stormovik (Beast) (upgraded version of Stormovik)
- Ilyushin IL-2m3 Sturmovik (Bark) (23mm guns can chew through tank armor)
- Petlyakov Pe-2B (medium bomber)
- Tupolev Tu-2S (medium bomber/fighter bomber)

US Fighters

- Grumman F4F-3 Wildcat (4x .50)
- Grumman F4F-4 Wildcat (6x .50)
- Bell P-39D Airacobra (good tank buster with 37mm cannon)
- Curtiss P-40C Tomahawk (Flying Tiger version w/ 2x .50 and 4x .30)
- Curtiss P-40E-1 Warhawk (6x .50)
- Chance-Vought F4U-1A Corsair (6x .50)
- Chance-Vought F4U-1C Corsair (4x 20mm)
- Chance-Vought F4U-4 Corsair (6x .50, hot engine)
- Lockheed P-38G Lightning (great torpedo carrier!)
- Lockheed P-38L Lightning (even faster version)
- Grumman F6F-3 Hellcat (US's best dogfighter)
- Republic P-47D Thunderbolt (try our Jug for the toughest non-bomber in the game)
- North American P-51D Mustang (holds E real well)

US Bombers

- Douglas SBD-2 Dauntless (dive bomber)
- Grumman TBF-1C Avenger (torpedo/level bomber with bombsight)
- Douglas A-20G Havoc (light attack bomber, has 4x 20mm and 2x .50 in nose, rear twin.50 turret, rockets, bombs, nasty!)
- Boeing B-17G Flying Fortress (you gotta work to bring this baby down)
- North American B-25J Mitchell (tough medium bomber/fighter bomber, has 6x.50 in nose, carries 4000 lbs ordnance and rockets)

More information:

To download Fighter Ace III and take it for a spin, or to find out more about Fighter Ace III check out VR1's website at

www.vr1.com

Aircraft and Realism

All of the planes that went into Fighter Ace 2.5 are rolled over into Fighter Ace III, and then some. That means 80 planes are modeled, count them, 80! Fighter Ace 2.5 offers about 60. That's a lot of planes, and there's quite a mix too.

In the way of realism, most of the hardcore simulator crowd has turned their noses up at Fighter Ace in the past, for lack of it. Or shall I say, for offering relaxed-realism. But now, Fighter Ace III delivers enough realism to make it a believable and enjoyable experience in its Advanced Arenas. There are even more options that can be toggled on to further enhance flight realism. Features like ballistics and damage modeling have been greatly enhanced over what was in place in Fighter Ace 2.5. You see many pieces of the plane coming apart in a firefight instead of just a few.

The User Interface

The UI has been improved a great deal since the previous version. For example, creating and joining a squadron can be done from within the interface. Even little tags can be seen with your squadron name before your pilot name in the game, without having to make the name something that has your squad name in it. This makes it possible to leave a squad and join a new one as time goes by, without having to go through the hassle of changing your pilot name.

Also, you can have up to five different pilot names to use per account! This allows you to have one pilot build up fighter stats, and then use another to build up bomber stats. You can even fly for one country one day, and a different one on another, with completely different sets of stats for each name. Or you can setup a pilot for your kids' to use, so you don't have to worry about them ruining the stats you've built up! This presents a lot of great possibilities. Considering Fighter Ace has always been a squadron-oriented title, these improvements are long overdue, and I'm certain they will all be welcomed with open arms by current pilots and newcomers alike.

Graphics

In the way of visuals, the new terrain engine is pretty impressive. It's nowhere near being as marvelous as what can be found in Microsoft Flight Simulator 2002, but it is a major improvement over the terrain graphics in previous versions of Fighter Ace. It's photo-realistic, and very detailed in major areas. But in some of the large open spaces it can get a bit repetitive. However, there is a lot of variety in what's there on the ground. They model a lot of different theaters of operation, and there's a wealth of new 3D-objects. New aircraft carriers, columns of tanks, transport ships, and even trains are there. And all of them look great.

Resolutions as high as your video card and monitor will support are offered. Up to 1600 x 1200 32-bit color is the ceiling, but even the default 800 x 600 16-bit color resolution didn't look bad the very first time I started it up.

The aircraft textures also look damn good, with great weathering effects present to boot. I like this because I have never been very fond of how some developers create planes that look like they just rolled off the assembly line. Weathered and war-torn planes have always looked more convincing to me. While they're nowhere near being as meticulously detailed as those found in Flight Simulator 2002 or Combat Flight Simulator 2, what's there is still a lot nicer than most of what you'll find online in other massively multiplayer simulations today.

The cockpit art is also worthy of mention. Even the stick and rudder pedals look a bit war-torn, and the stick can be seen moving around in the cockpit as you manipulate the flight controls.

Other nice visual enhancements include weather and time of day changes. Sometimes you'll be flying and all of a sudden night starts becoming dawn, and it was a real treat to sit on the runway in the middle of a rainstorm getting ready to takeoff to face the Japanese Empire in the Guadalcanal scenario. Both of these visual effects add a little extra to the overall immersion factor in Fighter Ace III. None of these visual effects were present in previous versions.

The Combat

The addition of tanks and ships also shake things up a bit, because tanks need to be stopped, and naval ships are not just targets. Enemy planes can takeoff from aircraft carriers, and the naval ships carry some pretty hefty firepower of their own, making them all pretty fierce foes to face. The naval ships can even attack shore-based installations with barrages of shelling!

Tanks are the means for any given country to capture territory, and they must be stopped at all costs. Stopping supplies by taking out factories, storage depots, trains, bridges and transport ships is another overall objective in the scenario-based arenas. Each side has so many tanks, and more are produced based on each side's supplies. The supplies even include your plane, and its ammo and fuel load. So if you make it back alive and touch down those supplies are thrown back into your side's inventory. Just another reason why it's important to stay alive.

While a lot of the supply system magic goes on in the background, what players do is more important in determining which side achieves victory. Community Managers can setup scenarios based on what players

want from day to day, so if more people would rather fly a Tanks & Islands scenario in a Battle of Britain, as opposed to one in North Africa, it can be setup that way. And the Community Managers can setup the victory condition, which planes are, or are not offered, and so on.

The options are plentiful too for the type of flying you are interested in. There are Advanced (with realistic flight models), Intermediate (more relaxed flight models) and Arcade arenas to choose from. Each can offer both an every-man-for-himself dogfighting arena, a mission based arena, or any combination.

There can be a number of different 250-player arenas for each pilot skill level. There is really no limit to what the scenarios might be, aside from the fact that you have US, Great Britain, Germany, Soviet Union and Japanese Empire sides to choose from. The historical maps include North Africa, Guadalcanal/Solomon Islands, Kursk, Battle of Britain and Northern Germany. There's lots of variety of interesting head-to-head and dogfighting scenario maps, like Death Bowl and Snake Canyon. Players can even create a Custom Arena of their own, with up to 250 players, if the current arenas don't offer what they're looking for at the moment.

Conclusion

If you are looking for the most realistic online flight/combat simulation that caters to the ultra hardcore WarBirds and Aces High crowd, this is not it. But like its predecessor, it is the best thing going in terms of a quick paced, action packed online flight/combat simulation with up to 250 players per arena, bar none. I absolutely love Fighter Ace III, because the bottom line is that it's fun...very fun. So much so that you can literally kill hours in it without realizing it has been that long.

With 80 different aircraft, a wealth of options to choose from, and a solid community supporting it, Fighter Ace III is the online flight simulation to be playing. Particularly if you don't want to read a 500-page manual before taking flight. And if a realistic flight model, and accurate damage and ballistics modeling are important to you, the Advanced Arenas are worth checking out.

Like most massively multiplayer online simulations, Fighter Ace III is ever evolving. Future plans include adding more planes, maps and scenarios. VR1 also shared with us that eventually they'd like to add the means to allow multiple players to man the various stations aboard the bombers.

Here's the best part: Fighter Ace III costs just \$10 a month to fly, and \$50 for a six-month subscription. While the download weighs in currently at about 250MB, it's well worth it, since it's free, and it even offers an offline mode for practicing. You can also order it on CD from VR1 too. →



SIMCharts

By Jeppesen

Aeronautical Charts For Flight Simulation

By Tim Dickens

Anyone who has been into flight simulation for a long time, perhaps since FS 2 days, knows that you can't get your hands on enough resources and navigational material. "Old timers" like myself used to loiter around the local FBO, and make a complete nuisance of ourselves, panhandling for giveaway sectional charts and approach plates that were destined for the trash bin because they were outdated. There was no Internet then, at least the way we know it now, so sources for this kind of material were few and far between.

Before you ask if this all changed when they brought in electricity, let's keep our flight sim timeline in perspective. We're just talking about 10-15 years ago. Edison gave us the miracle of light a full century before. But things have changed so much in the world of flight simulation during the intervening ten years, virtual relics like myself sometimes feel like we have been flying this PC since the Bronze Age. And one thing that has really changed, and for the better, are the resources available to us for important navigational material.

Before the Internet propelled this hobby to the level it is at today, we had to rummage for scraps to get these charts and approach plates if we wanted them, because real-world prices for this stuff were just plain out of sight. Some sectionals, and maybe a set of regional airport directory/approach plates could run you \$100 right out of the gate. And forget about low altitude charts or anything like that. To be really well outfitted with navigational material, your cost was the same as it was for a private pilot.

Once installed, the software is available from your Windows Start menu

Select Installation Regions

To install SimCharts, select the desired region(s) on the map below. Regions that are available for installation appear in white. Regions selected to be installed or that are currently installed appear in blue. Regions that cannot be selected appear in grey. Once a region has been installed, you will not be able to deselect it.



No Changes Made

Enter New Key

Leave the CD in the tray after installation. You will use the ChartMover function from the File menu to copy them to your hard drive if you wish.

Windows Update
New Office Document
Open Office Document
PaperPort

Programs
Documents
Settings
Accessories
Adobe Acrobat
Microsoft Visual C++ 6.0
Microsoft Excel
Microsoft Word
Logitech MouseWare
Acrobat Distiller 5.0
Adobe Acrobat 5.0
Internet Explorer
Outlook Express
Windows Media Player
FSD Cheyenne 400 LS
Jeppesen
SIMCharts
SIMCharts

ChartMover
Glossary
Legend
SIMChart Help
SIMCharts

Pay particular attention to is the dialog box during the installation process where you select the region you want to install

Jeppesen SIMCharts

File View Help

Open... Ctrl+O

Print... Ctrl+P

Recent Charts

ChartMover

Exit

Hard Drive CD
Airport List (2 airports)

ID	Location	Airport N
07C	AUBURN IN, USA	DE KALB
KDD	OLATHE KS, USA	NEW CE

Search Airport List:

Index #	Procedure

☒ Approach ☒ Departure ☒ Noise
☒ Airport ☒ Arrival ☒ Airspace

ChartMover

On CD

Region Central US

ID	Location	Airport Na
KISW	WISCONSIN RAPIDS WI, ...	ALEXAND
KIWD	IRONWOOD MI, USA	GOGEBIC
KIWH	WABASH IN, USA	WABASH
KIWS	HOUSTON TX, USA	WEST HC
KDD	OLATHE KS, USA	NEW CEN
KJAS	JASPER TX, USA	JASPER I
KJAX	JACKSONVILLE FL, USA	JACKSON
KJBR	JONESBORO AR, USA	JONESBC
KJCT	JUNCTION TX, USA	KIMBLE C

Copy to the Hard Drive ->

On Hard Drive

C:\Program Files\Jeppesen\SimCharts\VC

ID	Location	Airport Name
07C	AUBURN IN, USA	DE KALB CO
KDD	OLATHE KS, USA	NEW CENTL

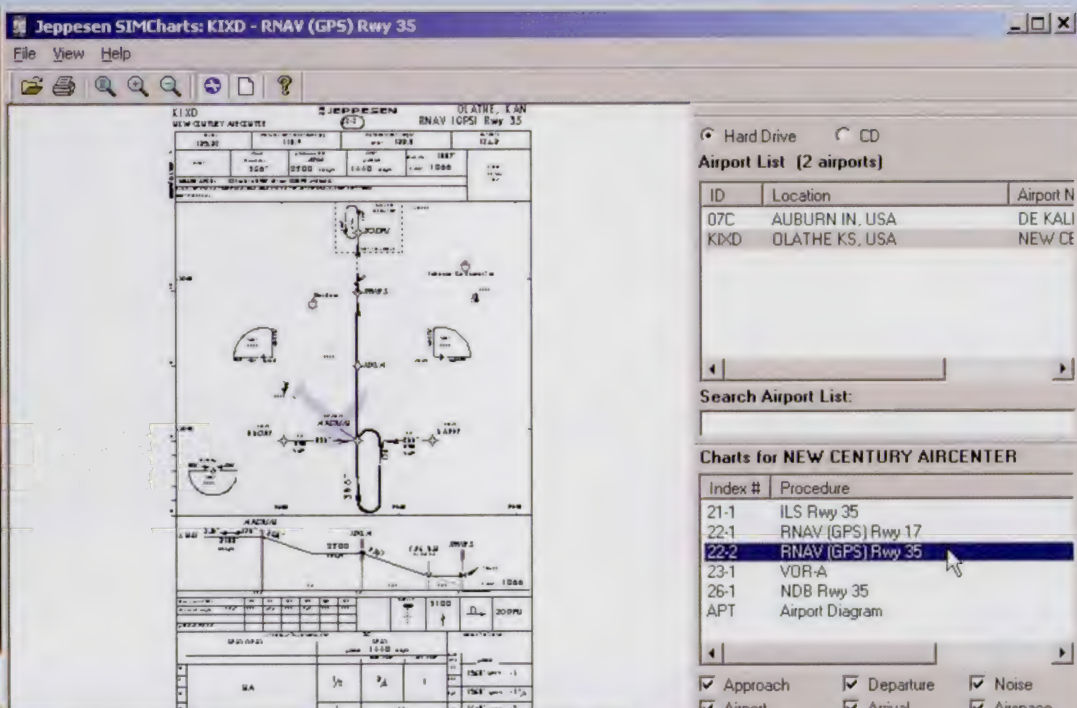
Remove from the Hard Drive

OK

Cancel

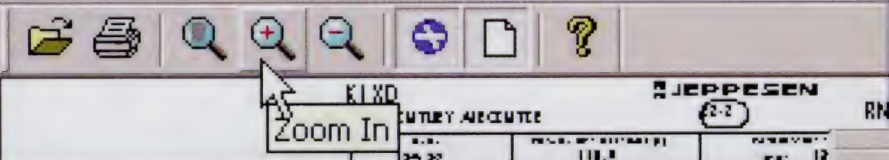
You can move as many charts to your hard drive as you like. Once there, the program will list them at runtime.

The basic program layout provides you with a dialog box showing the airports available, and below it, a dialog box showing what charts are available for that facility.



Jeppesen SIMCharts: KIXD - RNAV (GPS) Rwy 35

File View Help



You can refine the list of what charts are available with check boxes located directly under the Charts dialog.

SIMCharts Pricing

Terminal Packages

Installs 1 SIMChart region: \$29.95

Install 3 SIMChart regions: \$64.95

Combination Packages

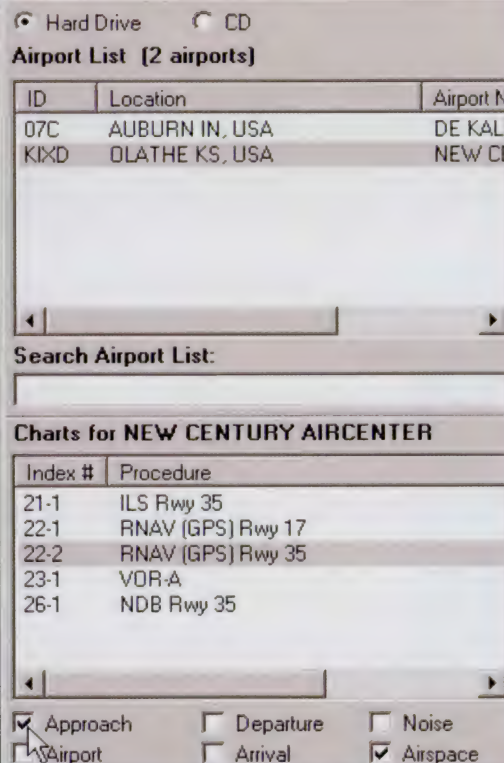
US Paper Enroute Charts and Eastern US Terminal SIMCharts: \$54.95

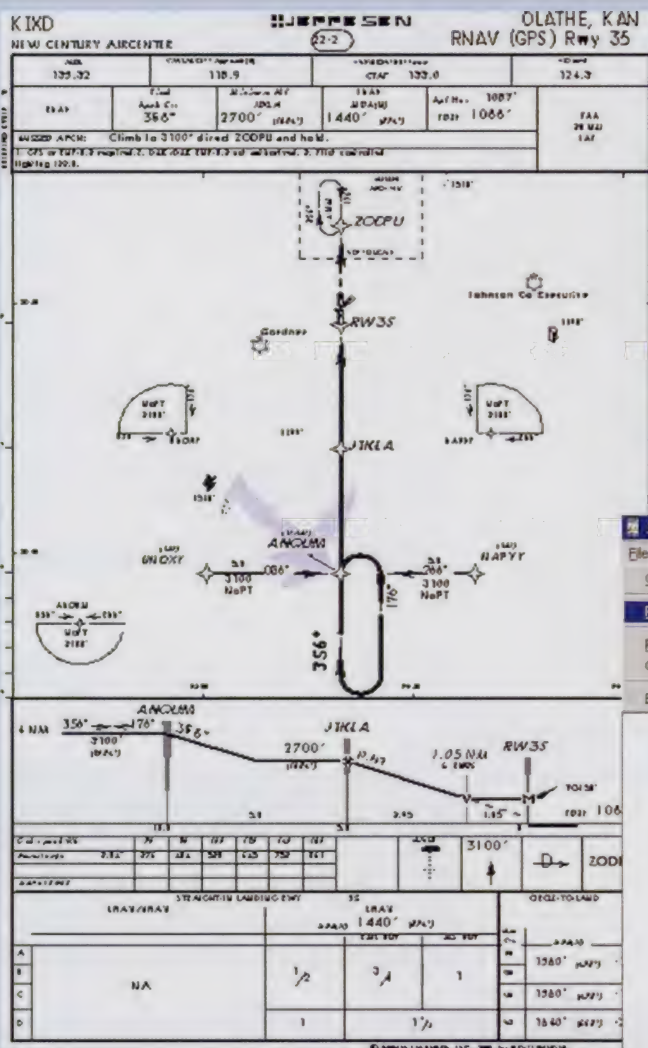
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Western US Paper Enroute Charts and Western US Terminal SIMCharts: \$54.95

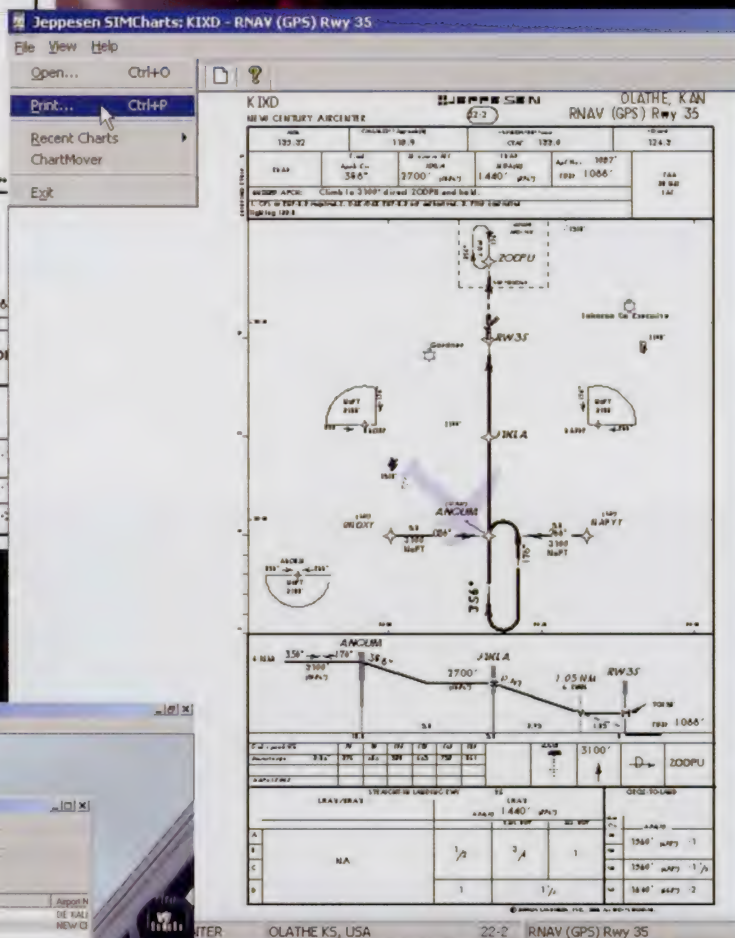
Europe Paper Enroute Charts and Europe Terminal SIMCharts: \$54.95

You can refine the list of what charts are available with check boxes located directly under the Charts dialog





The carts are high-resolution graphics, derived from the Jeppesen database, and are not the scanned images of printed charts that you can find on the Internet.



Enter Jeppesen

If you have been around aviation at all, you know the name Jeppesen. Started by Elrey Borge Jeppesen back in the 1930's, Jeppesen has been known as the leader in aviation documentation and navigational material for over 50 years. Over the ages of time since those FS 2 days, virtual pilots like myself simply assumed that a big aviation company like Jeppesen really had no interest in what we were doing. But we were wrong. They had been watching the flight sim hobby with quite a bit of interest, and some of their employees had been among our faithful following for some time now.

A few years ago it dawned on them that flight simulation was becoming a serious hobby. As our ranks grew, so did their interest. It seemed very obvious to everyone in the hobby, back in FS 98 days (only half a century) that as the simulator's database of airports and scenery regions increased, likewise did the need for simmers to get their hands on accurate navigation and facility data.

SIMCharts came into being just in time to meet the demand for increased realism in PC flight simulation. As the capabilities of the simulator expanded, the demand for "the real thing" became the order of the day. So there we have the situation, an ever-increasing multitude of sim enthusiasts striving for realism, and the largest database of navigation information looking for a way to take part in it all.

Installation and Documentation

The installation program is very straight forward, and installs SIMCharts wherever you request on your hard drive. At installation time you can add charts for as many regions of the world that you ordered. If you want additional regions you can add them later. The only thing you will want to pay particular attention to during the installation process is the dialog box that requests that you select the region you want to install. One might assume that the process has already included the region(s) you ordered. Do not assume this, and be sure you make a selection. Otherwise no charts will be installed.

Once installed, the software is available from your Windows Start menu. You can access the program at any time from there, whether Flight Simulator is running or not.

The documentation, in the form of standard Windows compiled HTML help files, are available for access directly from your hard drive, or from within the program via the Help menu.

Taking SIMCharts Out For A Spin

After the installation program has done its thing, you are still not quite finished. That is, if you want to keep the charts you will be using on your hard drive. If you consider how much data there is in, say, just the continental United States, all of these charts could take up some serious room. Therefore, by default, Jeppesen leaves them on the CD. So when you first start the program, you will want to leave the CD in the tray. You will be able to access the charts you want from the CD by using the ChartMover function from the File menu, or from within the simulator.

The program interface is simple and clean. When you start SIMCharts for the first time the control/dialog boxes open as separate windows. I recommend you attach them permanently to the programs Graphical User Interface (GUI). You do this by simply dragging each window into the position you want on the main GUI window. The program will automatically dock these windows to the main interface. Thereafter, the program will remember this layout each time you open it.

The basic GUI layout provides you with a dialog box showing the airports available, and below it, a dialog box showing what charts are available for that facility. You can refine the list of what charts are available with check boxes located directly under the Charts dialog. You will also find pertinent data on which airport/runway or chart you are using on the program's status bar (along the bottom).

The program's toolbar provides you will tools to zoom in and out of the chart displayed in the main window. You can also go back to "neutral" by selecting Full Size. SIMCharts takes full advantage of the Win32 development environment by providing tooltips that appear on top of each button, so you don't have to live inside the Help menu while getting used to it.

Simply select the chart you want in the dialog box, and it will appear in the main view pane. The charts are high-resolution graphics, derived from the Jeppesen database, and are not the scanned

images of printed charts that you can find on the Internet. Does this make a difference? Well, in terms of resolution, it actually does. There is a noticeable difference between the print quality of these charts compared to the scanned images you can download.

Did I say print? Yes, I did say that. You can print the charts directly from the File menu. No need to copy and paste an image into a Windows paint program, and then print from there. Of course, one of the advantages of a program like this is that you do not need to consume reams of paper printing charts anymore. You can run SIMCharts at the same time as you fly, and simply switch focus to it when you need information during your flight.

Conclusion

SIMCharts provides flight simmers with a valuable resource for airport and navigation data. That is, if "doing it the right way" is something you are striving for in your virtual aviation experience. Microsoft Flight Simulator 2002 provides the flight sim community with a platform that brings more realism and "real world aviation" to the table than ever before. If this is something you want to take advantage of, then SIMCharts is something you should seriously consider.

If you are one of the "jump in and go fly underneath some bridges" crowd, or you are just interested in very casual simulator flying, then the expense of this, or any real-world data, may not be worth it to you.

At first blush this may seem like a lot of money. But when you compare the cost to what the real-world aviation charts will set you back, in either printed or data format, it is a bargain. Plus you have the advantage of having everything organized in an easily accessed database, via a very easy to use Windows platform. Certainly easier than keeping track of piles and piles of charts and ring binders. For simplicity sake, it would have been good to have the entire continental US in one package. Unfortunately it is not offered that way.

On top of all this, you have the accuracy of the Jeppesen database, the very same data that Microsoft used in the construction of the default scenery and nav aids. It is unlikely you will find many anomalies, if any.

I highly recommend SIMCharts, if accessing these charts is important to you. It is well worth it. ➔

More Information

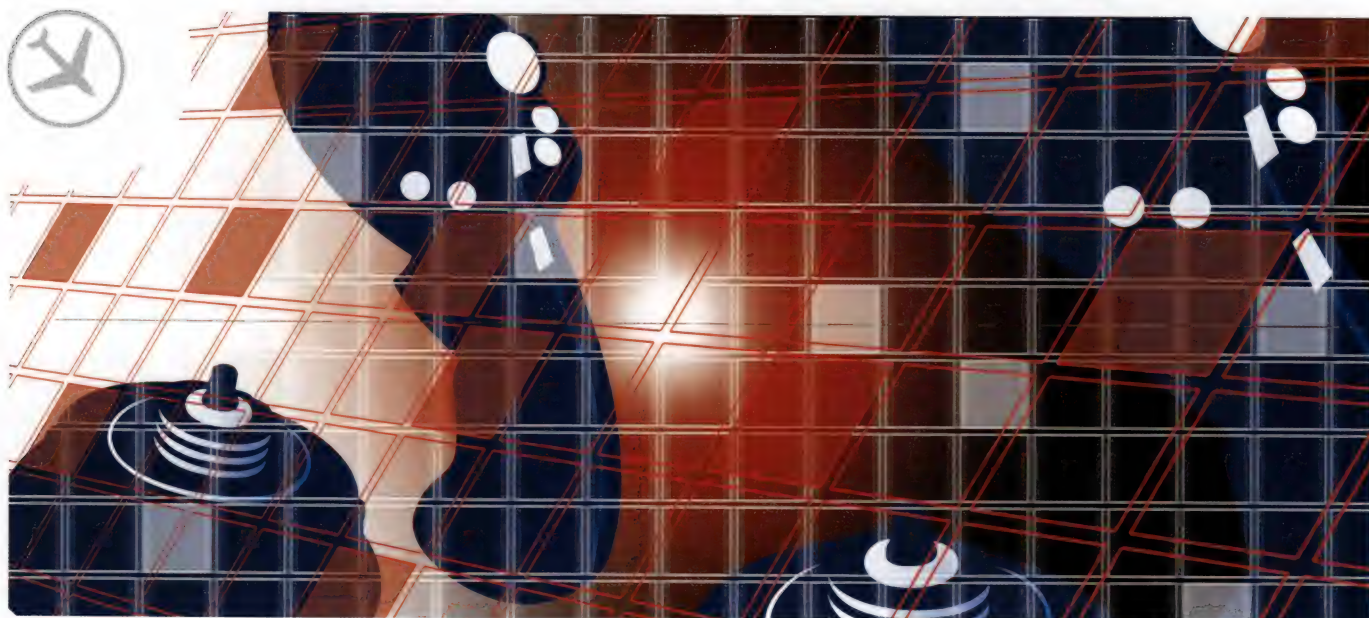
You can read more about SIMCharts from their web site at: <http://www.jeppesenpcpilot.com>

Some interesting company history can be found at: <http://www.jeppesen.com/wlcs/index.jsp?section=about&content=history.html>

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Airstick 2000

From eDimensional

By Phil Paschutine

While most joysticks support the same functionality, they typically differ by their design. Pretty much like the new generation sneakers... all skins and no soles! So depending on many factors and variables that come up during a purchase, be it compulsivity, over-the-top commercial blurb, gorgeous saleslady, or pushy salesperson, you might end up just buying a case with some electronics inside. Some of what you find is high quality, and some is just cheap components hidden by a next generation 3D zirconium coated "Rave Hyper-Speedo Action" case, or whatever the marketing boys are calling it today. Prices vary greatly, but it's not rare to see some of the expensive ones break down faster than anything else.

And then, every once in a while, there

comes that special item that has the reviewer jump up and say, "wanna test THAT". And eDimensional's Airstick 2000 made me say that.

Connection

The USB cable is over 9.6 ft in length, which is more than you will ever need. The Airstick 2000 ships with a 1-page installation guide, which you should read first. You can also download the manual from their website, in case you would like to have a look at it before buying. I found that the installation procedure was quite easy. The hard part was talking Windows into using it. You connect the interface plug into a USB port, and then configure it using the default Windows HID game controller drivers (no external drivers are needed). Once you convince Windows that everything is on the up-and-up, you can finally start flying.

The Joystick Mechanics

The stick can be compared to a wand, and possesses position sensors. Technically, according to the folks at eDimensional: "The position sensors are on a gyroscope which acts against the gravitational pull and tells the computer which position the joystick is in". Simple right?

The Airstick 2000 is made up of two parts. The base consists of a 7" x 7" plastic assembly, with six non-slip pads at the bottom, weighing a total of 620 grams (1 lb., 4 oz.). It has a 1-1/2" long x 0.44" diameter hard plastic plug that fits into the main stick. One inch fits into the stick itself, and a rubber boot (similar to the one you have on a gearshifts' base) hides the remaining half-inch. The main stick weighs 150 grams (5.3 oz.) and can be disengaged from the base by lifting it. There are no screws or other attachments that join the two together.

In FS2002, the Airstick will default to this configuration:

Button 3: trim down

Button 2: view cycle

Button 4 (below throttle slider): trim up

Trigger button: brakes.

Features

- Mid-Air Control
- 13 control buttons plus one Point of view (POV) hat switch
- 2-button digital throttle
- 2 Strafe/Rudder Buttons
- 4 Fire Buttons
- 2 Sensitivity Adjustment Buttons
- Point of View (POV) Hat Switch
- Throttle Control

The eDimensional Airstick 2000



The joystick's button positions

THROTTLE

RUDDER

3

2

4



Joystick and base configuration

The main stick is well designed and fits both right and left-handers. Do I hear "hooray"?

Its low weight make it feather light in your hands, so the good news is that you can say goodbye to cramps. When used in its baseless configuration, there is no need for any pressure to be applied to the stick, since it relies on the spatial position of the hand, or put another way, the position of the sensors on the gyroscope. Again, this is very good news because many of the sophisticated joysticks require a significant amount of pressure to move them.

The stick is made of clear plastic, and you can see the inside. It is made up of a lot of card connectors and wiring...cool if you're well versed in electronics. Otherwise a simple tint would have been just as nice. Inside there are 5 colored LEDs indicating the joystick sensitivity level, providing evidence that the joystick is working.

Three buttons on the upper part of the stick change the color of the LEDs from green to amber to red. They seem to be some kind of low, intermediate and high sensitivity settings to work in other games. I tested the stick with several simulators, and after I made the correct settings, I found it was quite a change. I was, however, unable to see what effect the 3 buttons had. It takes a bit of practice, but if you use gamepads you should be up and playing in minutes.

What we are interested in are the five remaining buttons, on either side of the joystick: one below the throttle, one

transparent soft rubber POV, and brake/fire buttons. Buttons 2, 3 and rudder axis buttons are easily accessible, even if you have a small hand. The central throttle slides easily so there is no excessive sideways or forward/back pressure to the stick when you adjust throttle settings. There is a small catch at mid throttle position to remind you are halfway through. The POV is made of clear soft rubber, and some may prefer this to a hard plastic POV.

The only "glitch" I found was the seemingly loose trigger button. The trigger part is hinged at the top, and when you activate it, a central piece taps into a pressure pad inside the stick. The fact that it is hinged at the top makes you feel the whole trigger is unstable, because it jiggles around like it's loose.

Taking Flight

The combination can be used either as a regular joystick, or you can disengage the main stick from the base and use it in mid-air. You can also place it on one leg, or any other surface. Definitely not something you can do with the average joystick, due to the typical base dimensions. Ever wonder how you could fly that Airbus A340 as command pilot, when having to remain in the right seat because the joystick you had was molded to fit right handers? Well now you can fly the heavies from the left or right seat.

The first flight with the Airstick may seem odd, but you get used to it, the hand will naturally guide the stick and flight maneuvers become easy. Although you can perform take off and landing in the baseless configuration,

I'd say it would be best to use the full base/stick combo, or at least have the stick rest onto a surface for these parts of your flight.

I had a few people test the Airstick, and they were amazed at the speed at which it would respond to a series of abrupt movements. If they adopted an unusual attitude and corrected it, the aircraft would respond instantaneously.

If you are building your own cockpit, this stick will prove pretty useful. The one-inch cavity inside the stick allows you to build a central column as well. I can already hear people sawing broomsticks.....I always wanted to try a central column yoke.

On the right side of the stick, each button is assigned a left and right rudder movement. They will still function even if autorudder is activated in the Aircraft Realism Settings in Microsoft Flight Simulator. These two buttons cannot be assigned any other function (it is an axis). A more logical approach would be to transfer the view cycle to button 4, and the trim up function to button 2. Also, in FS2000, buttons 2, 3 and 4 have the same default configuration, except that the two rudder axis buttons do not work at all. This is not the joystick's fault. It is an FS2000 limitation.

Conclusion

The Airstick 2000 will please virtual pilots and other gamers. It is Very light and the experience of flying without the restrictions of a fixed-base is quite a fun one. Cockpit builders can also take advantage of this joystick to build their Left yoke or central column. At about \$70 US the price is not at all out-of-sight. So if physical desktop restrictions are a concern, this is definitely something to consider. →

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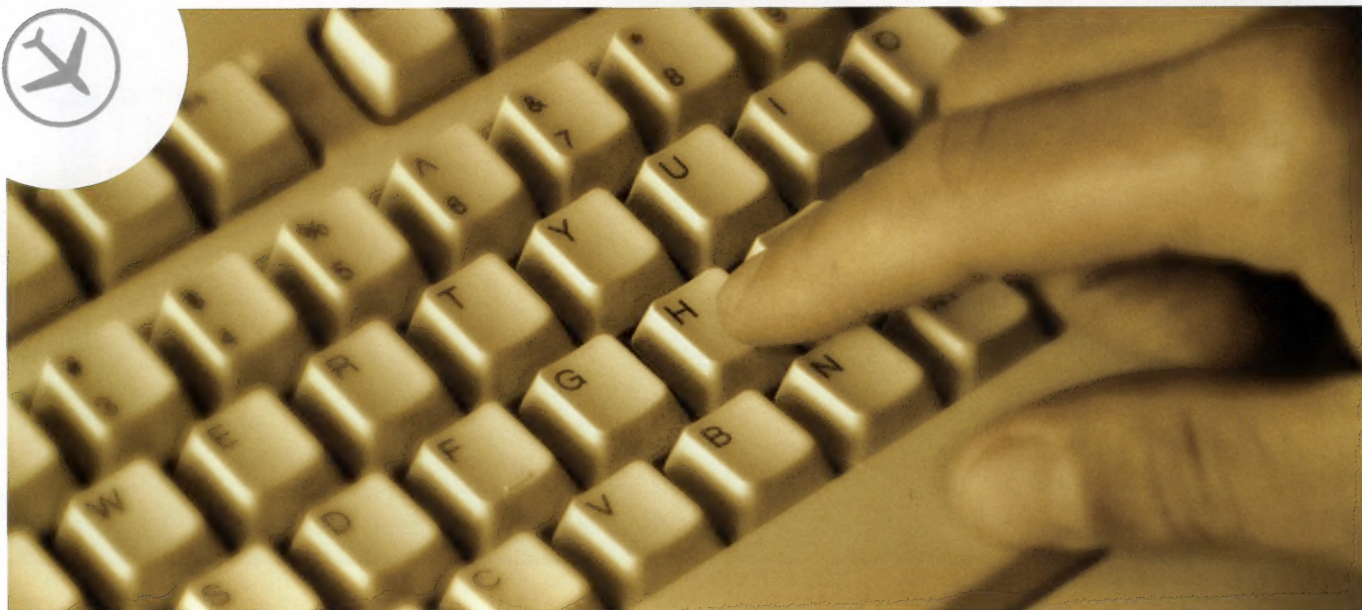
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Horton's HINTS4FS2002

By Doug Horton

In the last two issues, I've published articles with helpful **hints** for Microsoft Flight Simulator 2002. My objective is to share what I've learned about operating the biggest update yet of this ever-popular program. Some **hints** will be basic and some will be more advanced. There's no particular order, so take your pick, and give 'em a try!

Hiding the Menu Bar

If you wish to hide the Menu Bar when operating FS2002 in a Window, just right click the scenery area of the screen, and in the pop-up box, click Hide Menu Bar. Alternatively, you can edit the FS2002.CFG file, looking at the menu entries in the [Main] section. With a text editor, set HideMenuNormal and/or HideMenuFullScreen equal to "1" to hide the menu in the respective mode. Then how do you see the menus? Simply press either Alt key.

```
[MAIN]
Maximized=0
Location=0,554,1280,894
RUNNINGBADHW=0
HideMenuNormal=1
HideMenuFullscreen=1
```


Frame Rate Display

Most users know that the first press of Shift+Z brings up the present aircraft location coordinates and flight information display and that the next press of Shift+Z shows the instantaneous frame rate counter, as well as the number of "G's" (units of gravity) acting on the aircraft. There is an undocumented option to increase the amount of information on the frame rate display line. In the [MAIN] section of the FS2002.CFG file, add:

```
AVE_FRAME_RATE_DISPLAY=1.
```

FRAMES/SEC = 019.5 (LOCKED AT 20FPS) +1.0 Gs [005.6 018.8 020.0] <001.0> V: 8.9%



This will add to the default display, a group of three numbers in brackets [minimum, average, maximum] frame rates since the display was activated or cycled (by pressing Shift+Z four times). I think there's a problem with the minimum number, but the one that's important is the average, which is more meaningful and easier to read than the default instantaneous display of frame per second. Activating the extra frame rate display also adds two more fields. One of the fields is unknown, or at least we have not figured it out yet, but the field "V...%", according to Microsoft, is a measure of the "volatility" - the percentage change between frame rates, so the higher the number, the more variation in frame rate.

Interested in Astronomy?

There's another display option available, which will show the astronomical coordinates of the sun and the moon. Go back to the [MAIN] section of the FS2002.CFG file and add this:

```
ShowCelestialInfo=1
```

Scenery Cache

The Scenery Library scenery cache is only used to store data copied from the CD. The larger the cache, the less often FS has to download data from the CD. If you did a full installation, then the size of the cache on the Scenery Library interface makes no difference because it isn't used. If you are running the program from the CD, un-checking the "clear scenery cache on exit" box will make starting the next time faster (within the same Windows session), because the scenery will be loaded from cache, with the need to read from the CD.

According to Brent Conklin of Microsoft, if you are using scenery from the CD, then it also depends on what kind of flying you do. If you generally fly in one locale (for example, just around Amsterdam or the Netherlands), 100 MB should be plenty of cache. However, if you are making long distance trips from one large city to another, or from one continent to another, it would be a good idea to increase the cache size to as large as you feel comfortable given the amount of free space on your hard drive. The maximum amount of scenery you could ever cache from FS2002 disk 3 is about 1.5 GB. That's if you did Compact install and flew over every square kilometer of the FS World, so for most "long haul" users who are flying across oceans or from one large city to another, 300 to 500 MB should be plenty of cache.

Hiding Text Displays

FS2002 expands the number of text display available. The upper right-hand corner of the screen will display viewpoint, zoom, and simulation rate, some of which disappear after a few seconds. If you don't want to see ANY of the onscreen text - Parking Brakes, Brakes, Slew, View, Zoom, Pause, etc., you can add the following to the [Main] section of the FS2002.CFG file:

```
HideInfoText=1
```

If you only wish to hide the brake activation and parking brakes messages, you can add the following to the [Sim] section of the FS2002.CFG file:

```
Show_Brake_Message=0
```

Microsoft staff warns that, before you make these changes, you must promise that you'll never call technical support because you didn't know you were paused, brakes were on, etc.!

Winds and Magnetic Variation

Winds are reported in METAR reports as the true direction, while ATIS reports use magnetic direction, since all directional references in the cockpit and all runway headings are magnetic. This is important so pilots can determine how much the crosswind component will be for takeoffs and landings. When you press Shift+Z the first time, it will indicate the aircraft's geographical coordinates, heading, and wind direction and speed. Again, this is the true direction.

To see an example of this issue, use the GoTo feature to move your aircraft to Seattle-Tacoma International Airport (KSEA). Download real weather to get other than the default wind of zero speed from 360. Use Shift+Z to note the wind direction at the end of the information line, and then get the ATIS report by dialing 118.00 on COM 1. Note that the ATIS wind direction will be numerically lower than the true direction by about 20 degrees, since the magnetic variation at the airport is 20 degrees east, and magnetic + easterly variation = true. When I tried this example, the Shift+Z information showed the wind from 010, while the ATIS reported the wind from 350, corresponding to the variation of 20 degrees east. →



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